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ASSESSMENT OF MEDICAL PRACTITIONERS' PERCEPTIONS OF CLINICAL PRACTICE GUIDELINES

by

Mark Thomas Flynn

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STATEMENT BY AUTHOR

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ABSTRACT

A survey of 163 medical practitioners from three federal facilities was undertaken during February through April 1996, to assess attitudes toward, confidence in, and familiarity with clinical practice guidelines. A response rate of 83.4% was achieved.

Practitioners attitudes toward guidelines were found to be generally neutral. VAMC practitioners were found to have slightly more favorable attitudes. Levels of confidence in guidelines issued by various organizations were found to be in the low to medium range. VAMC practitioners had more confidence in guidelines issued by third party payers than Army practitioners. Levels of familiarity in guidelines developed by various organizations were generally lower than the corresponding confidence scores. No differences existed among the groups.

Practitioners thought that "formal literature review" and "reliance on national experts" were the most important methods used in guideline development. Also, the characteristics of validity, reliability, and flexibility were important in practitioners' acceptance of guidelines.

CHAPTER 1

INTRODUCTION

Health care reform, while moving fitfully at the federal level, is rapidly progressing on other fronts. The costs of health care for individuals, businesses, and governments are propelling this reform. Although the costs of health care are major political issues, the direction of the federal government reforms are unresolved. Congress is considering the potential of managed health care to reduce the rate of growth of national health expenditures while possibly improving patient outcomes.

One feature that many managed health care organizations employ in an attempt to reduce costs and improve patient outcomes is the use of clinical practice guidelines (CPGLs). The federal government also sees clinical practice guidelines as a way to improve patient outcomes (Clinton, 1993). They have made a commitment to the evaluation of health care that is now being delivered. As a result of this commitment, the Agency For Health Care Policy and Research (AHCPR) was established in 1989 (Marwick, 1990). The AHCPR has been charged with conducting and supporting research on health care services and delivery systems. One of its main activities is the development and dissemination of practice guidelines for use nationally.

Practice guidelines are designed to help medical practitioners choose the most appropriate health care intervention for a patient's specific clinical circumstances. Often, the health care intervention selected is pharmacotherapy. Along with the assumption that medical professionals will choose the most appropriate health care for

their patients is the expectation that the most appropriate medication will be used and that it will be used correctly.

For some time, pharmacists in organized health-care settings have been working with medical and nursing staffs, administrators, and others to ensure that drugs are used appropriately, safely and effectively. One mechanism commonly used to achieve these goals is drug use evaluation (DUE); a structured, ongoing, organizationally authorized, quality-assurance process (Hicks, 1994 p.47). Some of the responsibilities of the pharmacist in a DUE program include:

(1) Providing, in cooperation with the medical staff, drug use criteria (standards).

(2) Reviewing medication orders against DUE standards and consulting with prescribers.

(3) Obtaining quantitative data on drug use and prescribing patterns.

(4) Interpreting and reporting evaluation findings to the pharmacy and therapeutics committee, quality-assurance staff, organization administration, and others to recommend changes in drug use control policies and procedures.

(5) Participating in follow-up educational programs in response to evaluation findings.

Obviously these responsibilities indicate that pharmacists are already involved in making judgments about medication use for individual patients. The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) makes it clear with their accreditation standards that the responsibility for DUE no longer rests solely with medical staffs (JCAHO, 1994). The new standards are organized around functions critical to patient care, with collaboration across professions expected.

Pharmacists' knowledge of medication effects on patients generally puts them in a pivotal position in efforts to ensure rational drug use. The acknowledgment of pharmacists' expertise in the medication use process does not imply that pharmacists have exclusive authority for matters related to medication use. Other health-care professionals, including physicians and nurses, have valuable and well-recognized roles. The process of providing optimal treatment for the patient is one of collaboration with other members of the health care team. However, the pharmacist as a member of the team should take personal responsibility for the therapeutic outcomes that ensue from the patient's use of medications (Hepler and Strand, 1990).

The provision of medication-related care for the purpose of achieving definite positive outcomes that will improve a patient's quality of life is known as *pharmaceutical care* (Hepler and Strand, 1990). Pharmaceutical care is the fundamental concept behind the pharmacy profession's new mission (Zellmer, 1991). This mission now involves integrating many of pharmacy's cognitive-based services with other domains of care that are provided on behalf of the patient (e.g., medical care and nursing care). Some of these pharmacy services, such as patient counseling and prospective drug utilization review, are now being mandated by federal legislation (i.e., OBRA-90). For pharmacy, this mandate has served as a catalyst for the profession to rededicate itself to providing the patient with the type of direct care that they need.

Never has the government's involvement in health care been greater. However, not all members of the health care team welcome the federal government's increased

involvement. Their promotion of clinical practice guidelines (via the AHCPR) is just one example of this involvement. With the encouragement of the federal government, practice guidelines are being introduced throughout medicine. Opinions differ on the value of having generic decisions for the treatment of a collection of patients. Some view them as third party intrusions on the ability of physicians to make decisions in the best interest of their patients. Others view them as the answer to unnecessary, inappropriate, and costly care. Numerous medical and non-medical groups are involved in developing clinical practice guidelines. This involvement stems from the "promise" of guidelines to improve patient outcomes and decrease health care costs. Expectations differ on whether practice guidelines can live up to their promise. The federal government and third party payers feel that practice guidelines may lead to lower medical costs. Other groups feel that guidelines can optimize patient outcomes by enhancing the knowledge and behavior of practitioners. There is limited scientific evidence that practice guidelines can accomplish any of these expectations. Despite this, guidelines continue to be issued by numerous organizations, all using different methods and having differing perspectives (Audet et al., 1990; Woolf, 1990). While the issue of guideline development is being vigorously discussed, there has been little attention to the process of guideline acceptance by practitioners.

To date, there has been little effort devoted to ascertaining medical practitioners' attitudes toward clinical practice guidelines. One attempt to assess medical practitioners familiarity with, confidence in, and attitudes toward CPGLs was conducted by Tunis and

colleagues (1994). This study, limited to internists who were members of the American College of Physicians (ACP), found that most physicians recognized the potential benefits of practice guidelines, but that many were concerned about possible effects on clinical autonomy, health care costs, and satisfaction with clinical practice. Another study (Weingarten et al., 1995), found that HMO physicians were familiar with national practice guideline recommendations, generally had favorable attitudes towards them, but that patterns of practice did not always correlate well with their attitudes. This same study found significant differences in physicians' level of confidence in guidelines produced by different organizations.

STATEMENT OF THE PROBLEM

Clinical practice guidelines are being promulgated by numerous organizations within health care with high expectations that they will be able to improve outcomes and lower costs. Advocates of practice guidelines feel that they have the ability to improve the effectiveness of the health care system by eliminating inappropriate, wasteful care, and by decreasing costs. Not everyone agrees with this view. Some medical practitioners are wary of any administrative or bureaucratic "recommendations" that may interfere with their autonomy to make clinical decisions.

Despite signals from some physicians indicating a lack of confidence in them, practice guidelines continue to be developed and delivered to the medical community. The published literature provides limited insight into the basis for this lack of confidence.

There may be a relationship between physicians' lack of confidence in CPGLs, and a lack of familiarity with guidelines in general. It may be that physicians only have confidence in guidelines that they had a voice in developing (locally) or are intimately familiar with as a result of specialized training (medical specialty organizations). It may be that even guidelines that are developed by highly respected organizations will not be able to generate enough physician confidence to affect any change in their practice style. There is a fair amount of literature to support the theory that physicians learn to practice by observing what other physicians do (Winnickoff et al., 1991; Lomas and Haynes, 1988). If this is the case, then educational strategies aimed at physician participation and involving "opinion leaders" would seem to be in order. Medical practitioners' attitudes toward practice guidelines may be due to a lack of understanding of the developmental process, or it may due to problems in communicating the guidelines to practitioners with enough background. Often, a great deal of time and effort is devoted to developing practice guidelines, without a similar commitment to communicating to providers how a guideline came about, who was involved in its development, and what goals the organization hopes to achieve with the guideline.

Many questions remain unanswered as to the effect that guidelines have on clinicians' practices after they have been "issued." Waiting to be explored, are the perceptions of medical practitioners' attitudes toward CPGLs in general, and toward guidelines developed by specific organizations. A need exists to determine if medical practitioners' have any interest in CPGLs and whether they will utilize them after they

are developed. It will also be important to conduct research on whether medical practitioners' attitudes toward CPGLs are affected by some of the same demographic factors that have been shown to produce wide variations in medical practice patterns.

SIGNIFICANCE OF THE PROBLEM

Currently, the National Library of Medicine processes more than 33,000 medical articles each month. Medical progress, if measured by the growth and complexity of medical knowledge, is a runaway train with many health care professionals trying to keep up. Clinical practice guidelines are being developed to provide clinicians with specific, directive information that may be useful at the point of decision making in patient care. In 1992 it was estimated that more than 1,300 guidelines were either already in print or in the process of being published (McCormick and Fleming, 1992) and the AMA reports that they have a directory of over 1800 CPGLs.

Over 50 physician organizations, public agencies, private researchers, payers and other groups are involved in practice guideline development. More groups are using medical treatment guidelines for primary, specialty and nonphysician professional care than ever before. Medical groups continue to be the primary source for practice guidelines, however managed care organizations are increasingly using their own internally developed guidelines.

In response to the same economic and health care forces that are generating much of the private-sector guideline development, the federal government via the AHCPR has

joined the fray. A Medicare savings of 750 million dollars, after the introduction of the American College of Cardiology's "*practice parameters*" on appropriate use of pacemakers in 1983, has convinced policy makers that practice guidelines can have a positive impact on both health care quality and costs (Kelly and Swartwout, 1990). Current federal efforts involve looking at ways to translate clinical practice guidelines into medical review criteria, standards of quality, and performance measures (McCormick and Fleming, 1992). If a decision is made to adopt a public policy of using practice guidelines this way, it may have immediate implications for those health care organizations that have direct federal ties, specifically the Department of Veterans Affairs (VA), the Health Care Financing Administration (HCFA) and the Department of Defense (DOD).

Regardless of how managed care and the government utilize practice guidelines, pharmacists will have an integral role in their development and implementation. With medication use an important component in treating many diseases and thus a frequently used health care intervention in clinical practice guidelines, pharmacists will be involved in all phases of the practice guideline movement.

PURPOSE OF STUDY

The purpose of this study was to assess and describe medical practitioners' attitudes toward, confidence in, and familiarity with clinical practice guidelines issued by various organizations. More precisely, this study sought to collect preliminary

information, to serve as a starting point for future research on what concerns medical practitioners have regarding practice guidelines; and how these concerns can be addressed in future guideline development and dissemination efforts.

A secondary purpose of this study was to evaluate a group of Department of Veterans Affairs medical practitioners' self-reported perceptions of the effect a locally developed migraine management guideline had on their clinical decision making and practice.

RESEARCH OBJECTIVES

The objectives of this study were to:

1) Determine characteristics of surveyed medical practitioners working at three federal medical facilities, including: type of medical practitioner; gender; years of practice; primary specialty area; percentage of time involved in patient care; and physicians' level of post-graduate training.

2) Determine the attitudes of medical practitioners toward CPGLs.

3) Determine medical practitioners' level of confidence in CPGLs overall and with guidelines issued by specific organizations.

4) Determine medical practitioners' level of familiarity with CPGLs overall and with guidelines developed by specific organizations.

5) Determine the level of importance medical practitioners place on guideline development methods.

6) Determine the level of importance medical practitioners place on guideline characteristics.

7) Determine VAMC medical practitioners' perceptions of the goals of a locally developed migraine management recommendation.

8) Determine the perceived effects of a locally developed migraine management recommendation on the VAMC's medical practitioners care of migraine patients.

RESEARCH HYPOTHESES

Although many of the research goals were descriptive, 23 hypotheses were tested. Each is presented here in the null form. For all hypothesis testing, the level of significance was set at alpha ≤ 0.05.

Hypothesis 1: There are no differences in the attitudes toward CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 2: There is no difference in the attitudes toward CPGLs between physicians and physician extenders (i.e., nurse practitioners and physician assistants).

Hypothesis 3: There is no difference in the attitudes toward CPGLs between medical practitioners who had practiced ten years or less and those who had practiced more than ten years.

Hypothesis 4: There is no difference in the attitudes toward CPGLs between medical practitioners whose specialty is primary care and those whose specialty is other than primary care.

Hypothesis 5: There is no difference in the attitudes toward CPGLs between medical practitioners who are involved in patient care 75% of the time or more and those who are involved in patient care less than 75% of the time.

Hypothesis 6: There is no difference in the attitudes toward CPGLs between VAMC physicians involved in formal post graduate medical training (i.e., residents, interns and fellows) and those who are not involved in formal post-graduate medical training (i.e., attending physicians).

Hypothesis 7: There are no differences in the overall level of confidence in CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 8: There are no differences in the level of confidence in CPGLs issued by the American College of Physicians among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 9: There are no differences in the level of confidence in CPGLs issued by federal agencies among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 10: There are no differences in the level of confidence in CPGLs issued by a specialty organization among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 11: There are no differences in the level of confidence in CPGLs issued by third party payers among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 12: There are no differences in the level of confidence in CPGLs issued by a respondent's practice institution among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 13: There is no difference in the level of confidence in CPGLs issued by the Department of Defense Pharmacoeconomic Center (PEC) between the two groups of Army and Air Force medical practitioners.

Hypothesis 14: There are no differences in the overall level of familiarity with CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 15: There are no differences in the level of familiarity with CPGLs developed by the American College of Physicians among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 16: There are no differences in the level of familiarity with CPGLs developed by federal agencies among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 17: There are no differences in the level of familiarity with CPGLs developed by a specialty organization among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 18: There are no differences in the level of familiarity with CPGLs developed by third party payers among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 19: There are no differences in the level of familiarity with CPGLs developed by a respondent's practice institution among the three groups of VAMC, Army and Air Force medical practitioners.

Hypothesis 20: There is no difference in the level of familiarity with CPGLs developed by the DOD PEC between the two groups of Army and Air Force medical practitioners.

Hypothesis 21: There is no relationship between the level of confidence in CPGLs overall and the level of familiarity with CPGLs overall.

Hypothesis 22: There is no relationship between the level of confidence in CPGLs issued by: ACP, federal agencies, a specialty organization, third party payers, practice institutions and the DOD PEC and the level of familiarity with CPGLs developed by each organization respectively.

Hypothesis 23: There are no differences in what medical practitioners select as the primary, secondary and tertiary goals of the VAMC's migraine management recommendations.

DEFINITIONS

Assimilation-the process of taking in and incorporating something as one's own. To bring into conformity by adapting or adjusting one's current practice or behavior (Urdang, 1979).

Awareness-having knowledge of something. The state of being informed, alert and conscious of something (Urdang, 1979).

Clarity-having freedom from ambiguity, with the use of clearly defined terms and an easy-to-follow, logical mode of presentation (AHCPR Pub No. 93-0023, 1993).

Clinical Algorithm-a flow chart type of graphic format, specifically suited for solving a clinical problem in a finite number of steps (Margolis et al.,1989).

Clinical Practice Guidelines-preformed recommendations issued for the purpose of influencing decisions about medical care interventions.

Department of Defense Pharmacoeconomic Center-a department of defense organization consisting of Army, Air Force and Navy medical personnel charged with promoting the cost-effective use of pharmaceuticals and providing a consistent and equitable pharmacy benefit to all beneficiaries (PEC UPDATE, Vol. 96-02, 1995).

Drug Usage Evaluation-a structured, ongoing, organizationally authorized, quality-assurance process designed to ensure that drugs are used appropriately, safely, and effectively (Hicks, 1994).

Flexibility-deviations allowed for specific circumstances. Known or generally expected exceptions to a recommendation are identified.

Medical Practitioner-a term used to designate any person involved with the observation or treatment of disease in patients. May include physicians, physician assistants, nurse practitioners and others.

Pharmaceutical Care-the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life (Hepler and Strand, 1990).

Reliability-the ability to produce consistent, dependable performance or results; given the same circumstances, reproducibility of results (AHCPR Pub No. 93-0023, 1993).

Specificity-having a direct relationship to a specific result (Urdang, 1979).

Tri-service Formulary-a formulary approved by the Department of Defense's Pharmacoeconomic Center for use at Army, Air Force and Navy medical treatment facilities (PEC UPDATE 94-08, 1994).

Validity-the ability to produce the projected outcomes when followed; accomplishing what is intended (AHCPR Pub No. 93-0023, 1993).

CHAPTER 2

LITERATURE REVIEWED

A large amount of literature has appeared in the last ten years concerning the development, implementation and impact of clinical practice guidelines on medical practice (AHCPR, 1993; Ellrodt et al., 1992; Grilli et al., 1991). Policy makers have provided support for these efforts because of their keen interest in the effects guidelines may have on the cost of medical care (Marwick, 1990). Many believe that guidelines will lead to more appropriate and less expensive patterns of health care (Clinton, 1993; Gottlieb et al., 1990). Others suggest that guidelines may recommend more services or a more expensive mix of services, thereby increasing costs (Kassirer, 1993). Physician groups in general are wary of clinical practice guidelines; fearful that clinical autonomy may be threatened and patient outcomes compromised (Kelly and Swartwout, 1990).

The goals of this literature review are to define and differentiate some of the many terms being used to describe *preformed recommendations for patient care*. The second area of interest was in examining some of the factors that have hastened the proliferation of clinical practice guidelines. Third, this review describes the major groups that are developing and issuing guidelines, with a discussion of the role pharmacy has played up to now. Fourth, a general classification is used to describe the different methodologies being used in guideline development. Fifth, a review of the methods used to change practitioner awareness and adoption of *new knowledge* is discussed. Last, we conclude with a discussion of the opportunities for pharmacists in the practice guideline

movement and what problems still need to be addressed before guidelines can fulfill their ultimate objective of increased quality of care and lower costs.

CLINICAL PRACTICE GUIDELINES: DEFINITIONS

Clinical practice guidelines, standards of care, practice policies, practice parameters, recommendations, protocols, and clinical algorithms are just some of the terms used by numerous medical and non-medical groups to describe preformed recommendations issued for the purpose of influencing decisions about medical care interventions. The different terms for practice policies can be categorized by the amount of flexibility they give practitioners (Eddy, 1990a). *Standards of care* represent an authoritative pronouncement on the diagnosis and treatment of a medical condition. Little flexibility is allowed and deviations or exceptions would be rare and difficult to justify either among peers or within the courts (Garnick et al., 1991). The term *guidelines* implies more flexibility in interpretation and in use. Guidelines allow physicians greater latitude to exercise their professional judgment and experience. Guidelines are only recommendations for care. In fact, it is expected that deviations will occur as physicians tailor them to an individual patient. Similar terms are "relative" indications, procedures "of choice," and "generally" appropriate practices (Eddy, 1990a). The word *options* implies the greatest amount of flexibility in decision making for the physician. This term does not imply a specific course of action, but

simply describes what the alternatives are. Various organizations have adopted specific terms that differ in the amount of flexibility implied.

The American Medical Association (AMA) for example prefers the term *"practice parameters"* (Kelly and Swartwout, 1990). The AMA considers practice parameters a generic term for "acceptable approaches to the prevention, diagnosis, treatment, or management of a disease or condition, as determined by the medical profession based on the best medical evidence currently available." Their use of the term encompasses a wide perspective with varying levels of flexibility. Practice parameters can be considered as *standards of care* if alternative treatments are non-existent or inappropriate. In this case the parameters become generally accepted principles of patient care. Another interpretation of the term is as *guidelines*, when a recommendation for patient management is made or a range of acceptable methods exists. Finally, practice parameters can be a patient management *strategy* when medical knowledge is incomplete and is being used to assist the physician in choosing the most promising treatment for a patient (Kelly and Swartwout, 1990; Hirshfield, 1990).

THE PROLIFERATION OF CLINICAL PRACTICE GUIDELINES

The federal government, physician organizations, insurers, and many private groups are conducting or sponsoring assessments of medical practices with the expressed purpose of defining "appropriate" medical care (Roper et al., 1988; Audet, 1990; Woolf, 1990). The application of *outcomes research* (which assesses treatment costs and patient

outcomes) has resulted in the promulgation of medical practice guidelines as the best hope to eliminate some of the unnecessary and inappropriate medical care that is currently being provided (Chassin et al., 1987; Lomas et al., 1989). Two underlying factors that are contributing to the development and promotion of clinical practice guidelines are: (1) the accumulated evidence of wide variations in medical practice; and (2) the escalating costs of health care (Epstein, 1990). Numerous studies have identified elements that have contributed to physician differences in utilization of medical services (Pineault, 1977; Epstein et al., 1984; Hayward et al., 1994). Training factors, competence, personality types, practice style and the uncertainty of medical outcomes contribute to some of the differences seen in utilization rates that cannot be fully explained with case-mix adjustments (Epstein, 1986; Von Korff, 1994). Two other possible explanations for the variations seen are the self-interests of physicians and the role they play as the patient's agent.

Eisenberg (1985) in his research on physicians' practice patterns identified the self-interests of physicians in maximizing their own benefit as responsible for part of the variation seen in practice. Some of the physicians' self-interests are their desire for income; their desire for a particular style of practice or setting; and the physician's own personal characteristics. Other evidence has shown that the physician's role as the patient's agent has much to do with physician practice patterns. Those factors that influence the physician in this role are the patient's economic well-being, clinical factors, patient demands, defensive medicine, patient characteristics and patient convenience

(Eisenberg, 1985). The balance between the self-interests of physicians and the interests of their patients is complicated by the inherent role that physicians have in insuring that society is getting value for their health care dollar.

There is no controversy over the fact that there has been an unsustainable rate of increase in the dollars devoted to medical care in the United States. Since 1966, the rise in medical expenditures has exceeded the rate of inflation and has risen faster than any other sector of the economy. In 1995, the $1 trillion mark was surpassed in medical expenditures, representing almost 15% of our nation's gross domestic product. The federal government is trying to limit its share with smaller Medicare and Medicaid payments (Eddy, 1990c). Hospitals and physicians are attempting to shift their costs to private insurers and businesses. Business is reducing and restricting health benefits to their retired workers. Patients are expected to accept higher health insurance premiums with increased deductibles and more exclusion criteria (Eddy, 1990c). As a result of these financial pressures, a new accountability has developed in medicine that seeks proof that payers are getting value for their health care dollar (Relman, 1988).

Practice guidelines have the potential to address the cost issue that is inherent in every medical decision. A practice guideline may be used as advice for treating a patient or as criteria for third party reimbursement. Either way the cost issue is either implicitly or explicitly addressed. Implicitly, practice guidelines consider costs when they recommend a practice whose benefits exceed the costs or potential harm. Explicitly, practice guidelines consider costs when they are considered an integral part of the

medical decision, recommending a practice only if the health benefits are deemed worth the costs (Eddy, 1990c). This explicit consideration implies a value judgment and is one possible reason for the dislike of practice guidelines by some medical practitioners.

GROUPS INVOLVED IN GUIDELINE DEVELOPMENT

Practice guidelines specify the proper indications for physicians to perform medical procedures and treatments and the proper management of specific clinical problems (Woolf, 1990). Since some physicians feel that guidelines may inherently challenge their judgment and autonomy in decision making (Tunis et al., 1994), it is not surprising that numerous physician organizations are involved in their development (Kelly and Swartwout, 1990). Likewise since practice guidelines have the potential to reduce inappropriate and unnecessary medical practices thereby reducing costs, it should not be surprising to find strong interest by payers.

FEDERAL INVOLVMENT

Studies such as the 1981 RAND Health Services Utilization Study that examined three selected procedures and showed a substantial percentage of them to be inappropriate (Chassin et al., 1987), have prompted considerable interest by the federal government for effectiveness research in health care. The government sees clinical practice guidelines as potentially being able to reduce unnecessary care and expenditures. In addition, in a 1989 report to Congress, the Physician Payment Review Commission

(PPRC) called for further federal support for effectiveness research and practice guideline development. The Commission recommended the use of practice guidelines as "the best way to synthesize what is known from research and judgments of practicing physicians into a readily useable form" (Lee et al., 1989).

Within the U.S. Public Health Service (PHS) lies an agency tasked with improving the quality, appropriateness, and effectiveness of health care in the United States called the Agency for Health Care Policy and Research (AHCPR) (Marwick, 1990). As part of its congressional mandate, AHCPR facilitates the development of clinical practice guidelines by convening multidisciplinary, private-sector expert panels or contracting with private nonprofit or public organizations. Its goals are to promote effective, appropriate, high-quality health care; increase access to care; and improve the way health services are organized, delivered, and financed (AHCPR, 1995). AHCPR also funds research on key health care delivery as well as medical effectiveness issues. This research is accomplished through the awarding of grants and contracts to various non-profit entities (AHCPR, 1995).

Within AHCPR, the division responsible for guideline development is the Office of the Forum for Quality and Effectiveness in Health Care. The Forum develops, reviews, and updates practice guidelines through contracts with private groups or expert panels, and is responsible for disseminating practice guidelines to providers, provider organizations, peer review organizations, and accrediting bodies. (Woolf, 1990). AHCPR sponsors large-scale research programs on guideline development and their effect on

development and their effect on patient outcomes through its Medical Treatment Effectiveness Program (Burns et al., 1992).

OTHER FEDERAL AGENCIES

AHCPR provides assessments of practice guidelines through the Office of Health Technology Assessment (Clinton, 1990). The U.S. General Accounting Office (GAO) is involved in collecting information on guideline development that includes: (1) the processes used for forming and updating; (2) the various mechanisms for dissemination and compliance; (3) the assessment of their impact on patient outcomes; and (4) physicians' receptivity. The GAO's involvement stems from their desire to improve the quality of medical care by reducing waste and monitoring poor performance.

The U.S. PHS has been involved in practice guidelines since 1984 when it established the US Preventive Services Task Force (USPSTF) to develop evidence-based practice guidelines for preventive care. The USPSTF is responsible for examining more than 2000 studies from which practice recommendations for over 60 preventive services have been developed.

AMERICAN MEDICAL ASSOCIATION

The American Medical Association (AMA) has been very vocal in emphasizing the need for physician organizations to be involved in the development of "practice parameters." James H. Sammons, MD, executive vice-president of the AMA, said in a

1989 speech that their participation was necessary to ensure that practice parameters are properly developed and that quality improvement and not cost containment, serve as the foundation for their development (Kelly and Swartwout, 1990).

The AMA, as the umbrella organization for 79 different medical specialty societies, coordinates and facilitates practice parameter development for all of its physician groups. Its primary objective is to ensure the proper development and implementation of practice parameters. To achieve this objective they have formed a coalition with their specialty societies to address policy issues related to practice guidelines. This coalition resulted in the establishment of the AMA/Specialty Society Practice Parameters Partnership and Practice Parameters Forum. Its mission is to direct and influence the development, implementation, and application of practice parameters by working with key participants within the specialty societies. By helping the different physician organizations share information on guideline activities, the AMA is able to explore strategies to improve the quality of practice parameters (Woolf, 1990).

As a result of their experience working with their specialty societies, the AMA adopted five fundamental principles according to which they felt all practice parameters should be developed. Practice parameters should be (1) developed by physician organizations, (2) derived from scientific literature, (3) based on clinical expertise, (4) developed with reliable methodology, and (5) widely available to physicians in an effective and timely manner (Kelly and Swartwout, 1990). The AMA feels that these

principles will enable them to produce scientifically sound and clinically relevant parameters that are capable of practical application in daily medical practice.

SPECIALTY SOCIETIES

Guidelines have been issued by specialty societies since 1938 (Woolf, 1990). According to a 1989 survey, more than 35 physician organizations and national medical societies have developed over 700 *practice parameters* (Kelly and Swartwout, 1990).

In an effort to prevent and resolve possible conflicts between societies with differing guidelines, the Council of Medical Specialty Societies (CMSS) was established. The CMSS was created to provide coordination and to promote information sharing among the specialty societies. This council commissioned David M. Eddy, MD, Ph.D., to use his "explicit approach" to develop a manual detailing the application of his methodology in guideline development. The CMSS has begun sponsoring training courses in this methodology for members of the different specialty societies (Eddy, 1990e).

OTHER MEDICAL GROUPS

A program established in 1980 by the American College of Physicians (ACP), the Clinical Efficacy Assessment Project, has been developing guidelines based on supporting evidence by expert consultants (White and Ball, 1985). These guidelines are published in the *Annals of Internal Medicine*, accompanied by the details of the

background articles on which the guidelines are based (Woolf, 1992). The guidelines issued by ACP and those published by the Joint American College of Cardiology/American Heart Association Task Force (ACC/AHA) are unique in how they assist physician decision making. The ACP guidelines incorporate a thorough and critical review of the medical literature and the ACC/AHA guidelines provide concrete recommendations to physicians, including specific circumstances when procedures should not be used (Chassin, 1988).

ACADEMIA

Academic institutions have recently become involved in practice guidelines and the processes by which they are developed. Concerns about possible biases in guidelines developed by government, organized medicine and payers as a result of their financial interests has prompted this involvement. Their concerns led them to establish a consortium of nine academic medical centers in 1989, forming the Academic Medical Center Consortium (AMCC). The research interests of the consortium include working with the RAND Corporation to refine and test its methodology for developing appropriateness criteria (Woolf, 1990). A formal collaboration to conduct this research, to develop practice guidelines, and to evaluate their impact on practice behavior has recently been established among the AMCC, the RAND Corporation, and the AMA (The Clinical Appropriateness Initiative).

THE RAND CORPORATION

The RAND Corporation formally became involved in practice guidelines in the early 1980s when they developed a formal approach for evaluating clinical appropriateness by expert consensus (Park et al., 1986). They have established relationships with HCFA and with AHCPR in their research efforts to develop national practice guidelines. The RAND Corporation's expertise in research and their ongoing involvement with government and private health care organizations assures them a continued role in the "outcomes movement."

PAYERS

Insurance companies, HMOs and other payers are conducting or sponsoring assessments of medical practices with the expressed purpose of defining effective or "appropriate" medical care (Epstein, 1990). This outcomes research is being initiated with the expectation that at least some of the inappropriate and/or unnecessary medical care that is being paid for will be eliminated (Anderson et al., 1993). One mechanism being used to achieve these cost reductions is the development and promotion of medical practice guidelines by payer groups.

The objective of payers' use of practice guidelines differs from that of organized medicine. Their emphasis is on financial considerations and deals with claim decisions, utilization review assessments and the identification of cost-efficient providers (Woolf, 1990). Some insurance companies have issued internally developed guidelines without the collaboration of physician organizations. These guidelines have predictably had

limited success. It has been demonstrated that physicians had no confidence in payer-issued guidelines and therefore the guidelines were not successful in altering practice styles (Tunis et al., 1994).

Some insurers have collaborated with physician organizations. Collaboration is done to enhance the clinical input, scientific rigor, and confidence in the insurer's guidelines. For example, the National Blue Cross/Blue Shield (BC/BS) Association has been working with the American College of Physicians since 1976. One result of this cooperation was the Medical Necessity Project, which developed guidelines to identify procedures that required members to seek medical justification from the provider before payment of benefits (American College of Physicians, 1987).

The use of payers' guidelines to determine appropriateness of care and payment has received poor reception by physician groups. Because of this response, many health insurance companies have become interested in improving their methods for assessing appropriateness and in setting guidelines. The Health Insurance Association of America (HIAA) responded by establishing a Medical Practice Assessment Unit in 1988 (HIAA, 1989). This new division within the HIAA convened expert panels to develop guidelines for insurers to determine whether a particular practice or technology is an "acceptable medical practice." As a result, its member companies have up to date information on all new medical practices from which to develop coverage policy.

STATES AND OTHER ORGANIZATIONS

The states are under increasing financial pressures due to unchecked Medicaid expenditures and rising malpractice liabilities. They have responded by developing and enforcing practice guidelines in the hopes of slowing these increases. States like New Jersey and New York have instituted mandatory practice guidelines for anesthesiologists; and other states are considering plans to entice physicians to accept practice guidelines (Pierce, 1990). Some organizations like the American Cancer Society and the American Diabetes Association have issued guidelines aimed at influencing the medical care of their specific patient groups. Medical associations at the state, county and local levels all have an interest in promoting practice guidelines. Consumers are interested in practice guidelines as they start to place greater emphasis on making informed health care decisions. Groups like the American Association of Retired Persons (AARP) are interested in practice guidelines as an aid in assisting members to assess the appropriateness of their care and in selecting providers.

HOSPITALS

Hospitals are quite heterogeneous in terms of location, population served, teaching status and medical staffs; therefore, it is not surprising that many have developed their own clinical practice guidelines. Many studies have documented a lack of physician compliance with practice guidelines, even when developed by panels of experts and promoted by respected physician organizations (Lomas, 1988; Lomas et al., 1989; Woolf, 1993). Other studies have shown that education alone without feedback

will not significantly alter physician practice behavior (Schroeder et al., 1984.). It is for these reasons that the use of internally developed clinical practice guidelines has played a prominent part in the quality assurance and peer-review activities of hospitals for some time.

THE ROLE OF PHARMACY

Pharmacy groups throughout the health care industry have been involved in developing guidelines as a means to reduce inappropriate care and thereby improve patient care. The American Society of Health-System Pharmacists (ASHP) has recently published guidelines for asthma management developed by the National Asthma Education and Prevention Program Coordinating Council (NAEPP). These guidelines (MacKinnon et al., 1996) are the first published that emphasize the role of the pharmacist in the management of an illness. ASHP promotes pharmacists' involvement in patient focused care, recommending that "pharmacists should be involved in the development of clinical care plans that involve medication use" (Hicks, 1995, p. 24). The basis for ASHP's support of pharmacists' involvement is most likely based on the premise that drugs are often used as the primary medical care intervention in treating patients.

Pharmacists are uniquely qualified to share decision making responsibility for the optimal selection of a treatment for a patient's illness. Pharmacists' experience with drug-use-evaluation (DUE) and formulary management is directly applicable to the decisions that are employed in the use of treatment guidelines. Researchers have concluded that practice guidelines are more likely to be adopted and therefore more

effective if they are developed locally (Lomas, 1989). This may be one reason why pharmacists have been successful in managing drug therapy by "guidelines." Whether it be a pharmacist-directed program for monitoring foscarnet therapy (Liu et al., 1994) or a pharmacy-managed protocol for dosing warfarin (Rivey et al., 1995), pharmacists have demonstrated they have the necessary experience and knowledge to successfully manage the drug therapy that is used within treatment guidelines.

One of the more organized examples of pharmacist involvement in guideline development is a Department of Defense (DOD) program combining Army, Air Force and Navy personnel. This program has brought together pharmacists, physicians and researchers to form a Pharmacoeconomic Center (PEC), tasked with analyzing matters related to pharmaceutical treatments in various disease states. Their "mission" is to: (1) provide a consistent and equitable pharmaceutical benefit for their beneficiaries, (2) select the most cost efficient pharmaceuticals for inclusion on their Tri-Service Formulary, and (3) be responsible for coordinating and directing pharmacy activities on behalf of the Assistant Secretary of Defense (Health Affairs) [ASD (HA)] (PEC, 1995a). Also included in the PEC's mission is the analysis of various disease states and the publishing of treatment guidelines, preferred drug lists, and drug use evaluation criteria (PEC, 1995b). To date, the PEC has published guidelines for the treatment of hypertension, acid-peptic disorders, major depression, acute respiratory tract infections, and hyperlipidemia. Other disease states scheduled for review are vulvovaginal candidiasis, asthma, migraine headache prophylaxis, benign prostatic hyperplasia,

hepatitis A, and Type II diabetes mellitus (PEC, 1996). These guidelines, based on the most recent documented evidence of efficacy and side effects, are then disseminated to all DOD medical treatment facilities for local adaptation and implementation.

Clinical practice guidelines are becoming a part of today's health care environment. This growing interest in practice guidelines has resulted in their being used more frequently in the practice of medicine. Interest by numerous groups is spreading rapidly, headed by the federal government. The creation of the AHCPR and its elevation to a full PHS agency is evidence of the importance that has been placed on practice guidelines. Through the authority given to AHCPR, the government has positioned itself in a leadership position as to how medical care practitioners will evaluate and manage their patients in the future.

For physicians, there is general agreement that practice guidelines can contribute to medicine as an educational tool and as an aid in decision making. However there is also concern that "restrictive applications" of guidelines by third party payers, malpractice courts, and health administrators will block access of physicians and patients to necessary services mislabeled as "inappropriate" (Woolf, 1990). Some physician organizations have committed themselves to working with guideline developers. Other groups see them as simply not worth the effort (Kassirer, 1993). Perhaps the major concern of physicians is that programs to develop practice guidelines are being developed at the national health policy level without the direct involvement of practitioners on the "front lines."

These efforts by public and private insurers to define acceptable medical practice have not gone unchallenged by the courts. Insurers' attempts to deny claims on the basis of the results of formal technology assessments or practice guidelines have often been overturned by the courts (Anderson et al., 1993). The courts have generally been unsympathetic of insurers questioning specific physician practices, even when the treatment has been markedly inconsistent with prevailing medical practices.

These court decisions have implications for the use of practice guidelines in containing costs. Efforts to develop rigorous, scientifically based guidelines are wasted if physician groups and payers do not agree to follow the same sets of practice guidelines (Anderson et al., 1993). Regardless of whether guidelines are used to improve the quality of care, protect physician autonomy, reduce malpractice liability, minimize practice variations or lower health care expenditures, the methodology by which they are developed, implemented and used will be critical to how effective they are in changing practice behavior.

METHODOLOGIES IN PRACTICE GUIDELINE DEVELOPMENT

The methods used for developing practice guidelines vary depending on the group involved and the intended goal. Each group has different structures and uses different processes. They range from the haphazard and unscientific to the structured collection of data garnished with expert clinical judgment. Resolving these differences between methods is the first step toward fulfilling the "promise of guidelines." One classification

of the methods used to develop practice guidelines lists them as informal consensus development, formal consensus development, evidence based guideline development, and explicit guideline development (Eddy, 1990d; Audet et al., 1990).

INFORMAL CONSENSUS DEVELOPMENT

Informal consensus development or the "traditional approach" (Eddy, 1990d) has been around the longest and is responsible for many of today's guidelines. The traditional approach involves summarizing the most common practices that exist and labeling these treatments as the standard of care. This method does not try to identify the best approach nor change the most common practices. These guidelines evolve from the results of thousands of medical decisions, all based on the individual clinical experiences and knowledge of the practitioner. Guidelines developed this way are accepted as the *standard of care* simply because they have stood the test of time and now are regarded as common practice.

A distinction needs to be made here between the "*standard of care*" and the "*standard of practice*," since these terms are occasionally used interchangeably, yet represent quite different concepts. A standard of care as defined earlier, represents an authoritative pronouncement on the proper treatment of a medical condition. A standard of care only exists when there are no alternative treatments or the alternatives have been shown to be inferior or inappropriate. Standards of practice however, represent the most common treatment that medical practitioners utilize to treat a particular condition.

The assumption that what people are generally doing (standard practice) is what they should be doing (standard of care) is a fallacy (Eddy, 1990d). Often decisions are made without knowing or considering all the alternatives. Medical providers rarely have perfect knowledge of the outcomes of their decisions and often do not know what the patient's preferences are. Despite this lack of knowledge, decision makers often assume that they do know what the consequences of a practice are and subjectively make decisions without necessarily examining the evidence supporting its use or comparing outcomes. Basing medical decisions on a distorted perception of reality rather than on scientific evidence may result in practice policies that do not represent the best medical knowledge available.

While this informal method of subjectively deciding what the criteria should be is appealing due to its relative low cost, simplicity and speed, the results are often guidelines of poor quality (Woolf, 1992). Even if the guideline criteria are developed using the recommendations of "expert consensus panels," problems or perceptions of bias may result. Some assurance is needed that the panel correctly analyzed the problem and did not simply give their opinion about what is, or what should be, the standard practice (Eddy, 1990d). If the method used is not transparent and assurances given that the scientific evidence was reviewed correctly in the recommendations of the panel, then readers may be unsure if the guidelines were influenced by the evidence or if the evidence was overlooked due to biases.

For guidelines to be effective, medical decision makers must have confidence in how they are developed. Guidelines that are protected from scrutiny due to proprietary concerns (e.g., insurance companies) or raise questions regarding conflicts of interest due to financial gain (e.g., specialty societies) will not instill the necessary level of confidence. More formal methods of guideline development that provide readers with documentation of the rationale for the decisions can enhance the level of confidence placed in them.

FORMAL CONSENSUS DEVELOPMENT

Formalized approaches to guideline development began in the 1970s with the National Institutes of Health (NIH) Consensus Development Program. This program primarily relies on a structured 2 1/2 day conference at which a panel of individuals from a variety of disciplines, hears testimony from expert witnesses (IOM, 1990). During the first day and a half, witnesses present their recommendations to the panel. On the last day the panel prepares a draft statement developed in closed session and presents it to conference participants. Panelists often work through the night to reach agreement on the recommendations and may modify them based on conference participants' reactions before releasing them as a final statement.

Although this process provides more structure than previous ones, it has come under criticism (Lomas, 1986; Woolf, 1992). Prior preparation of the panel is variable and often minimal (Lomas, 1986). There is no data-based review conducted to establish

existing practices and identify specific problems, and there often is an absence of explicit guidance in the recommendations. The most frequent criticism is the requirement to produce recommendations quickly, by compressing the testimony, writing, and editing into a single meeting (Woolf, 1992).

Another formal method of guideline development using clinical algorithms has been used by the Harvard Community Health Plan, an HMO based in Boston, MA. The algorithms are developed using consensus development techniques such as nominal group process and the Delphi method. Algorithms were selected for their standard-setting efforts because of their ability to be clear, concise, graphic, and excellent for communicating and representing specifications of optimal clinical care (Gottlieb et al., 1990).

The RAND Corporation introduced a more formal approach to consensus development in the 1980s (Park et al., 1986). An expert panel is convened and provided with background articles that review the existing scientific evidence for a procedure as well as a comprehensive list of indications for performing the procedure. Panel members then use a two-step Delphi technique to assess the appropriateness of the procedure for each indication. After discussing the reasons for their disagreements, a final list of ratings is generated which reflects the extent of agreement of the panel regarding the appropriateness of the procedure for each indication (Woolf, 1992).

While this approach is popular and has been used commercially by hospitals, HMOs and insurers, it has limitations for clinicians in their daily practices. The list of

appropriateness scores is sometimes difficult for physicians to apply in specific clinical situations. This approach also has been criticized for using opinion as the basis for its recommendations and for failing to provide an explicit link between the scientific evidence used and the recommendations (Jacoby, 1988).

EVIDENCE BASED GUIDELINE DEVELOPMENT

Some groups have specifically linked their recommendations to the available evidence in developing guidelines. These guidelines are more explicit in identifying, describing, and analyzing the evidence. A program established by the American College of Physicians in 1980, the Clinical Efficacy Assessment Project, recognizes the subjective nature of an expert's judgment and attempts to anchor their guidelines to the available evidence. The guidelines developed by the Clinical Efficacy Assessment Project have been adopted by the Blue Cross and Blue Shield Association (BC/BS) for use in their coverage policies. Other groups that have used this approach in developing their guidelines are the US Preventive Services Task Force, the Congressional Office of Technology, and the AMA's Council on Scientific Affairs (Sox and Woolf, 1993).

While the evidence-based approach makes a commitment to the evidence and does not recommend a practice without proof that it has been effective in improving patient outcomes, this is also the source of its criticism. Often specific recommendations will not be made without adequate evidence. Neutral statements regarding the benefits or harms of a procedure are worthless in aiding clinical decision making, the purpose

behind practice guidelines. One criticism that Woolf (1992) cites is that strict adherence to an evidence-based approach would eliminate most medical practices today, since only a small percentage of our current medical interventions have been validated through clinical studies.

The AHCPR has adopted a methodology that adopts the evidence-based approach yet recognizes and supplements it with expert opinion in the absence of adequate clinical studies. The guidelines developed by AHCPR explain the rationale for their recommendations. The process includes a formal assessment of the scientific evidence, panel meetings, and open forum sessions (Woolf, 1991). The evidence-based approach further enhances the scientific rigor of practice guideline development but the recommendations made are still based on *qualitative* reasoning (Eddy, 1990d).

EXPLICIT GUIDELINE DEVELOPMENT

A more *quantitative* approach developed by Eddy promotes using more explicit methods of guideline development in order to help clarify the rationale for recommendations. Eddy (1990e, p. 2240) believes that any policy statement should spell out the following information:

1. Summary of the Policy: A clear, concise, specific, operational description of the policy, and its intended use and degree of flexibility (standard, guideline, or option).

2. Background: Any information needed to understand the problem.

3. Health Problem: A description of the health problem, the intervention(s) addressed by the policy, alternate intervention(s) considered, the patients involved, and any restrictions on type of practitioners who should intervene or in practice settings.

4. Health and Economic Outcomes: List of the health outcomes and economic costs that are considered.

5. Evidence: Evidence of the effect of the intervention on the important health outcomes.

6. Effect on Health and Economic Outcomes: Quantitative estimates of the magnitudes of the health and economic outcomes, including, when appropriate, the range of uncertainty involved.

7. Methods Used to Derive the Estimates of Outcomes: A description of how estimates were made in the previous section (statistical methods, models used, etc.).

8. Preference Judgments: A description of the judgments made about the desirability of outcomes. A comparison of benefits, harms, costs, health outcomes and preferences.

9. Instructions for Tailoring Guidelines: Factors that should be considered when applying the guidelines and instructions for tailoring the guidelines to different situations.

10. Conflicts with Other Policies: If they exist, they should be explained and reconciled if possible. The reasoning for a different policy should be described.

11. Comparisons with Other Policies: A description of other interventions with which the intervention of interest has been compared as well as any cost-effectiveness analyses.

12. Caveats: A description of expected technical developments or new information that could modify the policy as well as suggested dates for reviewing the policy.

13. Authors of the Policy: A list of the authors of the policy, their expertise, and any conflicts of interest.

The explicit approach promoted by Eddy requires a quantitative analysis of the magnitude of benefits and harms. The estimates are tabulated allowing decision-makers to evaluate the potential benefits, harms, and costs of each choice (Eddy, 1990g). Within this approach of estimating outcomes is a method of making judgments about the desirability of the outcomes. While including an assessment of the patient's preferences is considered to be the most complete approach, some critics argue that the complex analytic tasks involved may be impractical and not worth the added costs in time and resources (Epstein, 1990; Dans, 1994).

All of these methods to develop practice guidelines have their limitations. The informal consensus method while used the most, is perhaps the most flawed. It often results in decisions based on inadequate knowledge and biased judgment. The formal consensus methods while utilizing expert knowledge often does so within a compressed span of time, resulting in hurried judgments which are still based on opinion (although now it is an expert opinion). The explicit approach while appealing in its use of all possible sources of information, is too complex, expensive, and impractical for the average practitioner's use. The evidence based method holds the most promise for developing scientifically sound and usable guidelines. This method removes much of the opinion and bias inherent in the informal and formal consensus methods. Its recommendations are transparent and specifically links the evidence to the recommendation. Although a pure evidence based approach would be insufficient due to the absence of "proof" for many clinical interventions, a variation of it would allow

clinicians to make decisions on the existing scientific evidence, and when lacking, expert judgment. This approach, adopted by AHCPR has resulted in some of the more realistic and usable practice policies and, therefore, may have the best chance for acceptance by practitioners.

STEPS IN PRACTICE GUIDELINE DEVELOPMENT

Woolf (1992) describes certain steps that are central to guideline development, regardless of which approach is used. Differences in emphasis of the steps may exist among groups but he suggests that all of the following should be included in guideline development: introductory decisions, assessments of clinical appropriateness, assessment of public policy issues, and guideline document development and evaluation.

Introductory Decisions

Selection of Topic: The conditions or complaints for which the guidelines are designed.

Selection of Panel Members: Determination of the size and composition of its "experts."

Clarification of Purpose: Defining the topic, target condition, types of patient, clinical presentations for which the guidelines are intended, and the interventions considered.

Assessment of Clinical Appropriateness

Assessment of Clinical Benefits and Harms: Determine which practices produce the best clinical outcomes for the patient by looking at the scientific evidence and expert opinion.

Assessment of Scientific Evidence: Comprehensiveness of the literature review for admissible evidence. Evidence may be published, unpublished, peer-reviewed, limited to

clinical trials or involve broader reviews, research types and studies. The review of the evidence involves three steps: (1) Retrieval of the evidence, (2) Evaluation of individual studies, and (3) Synthesis of the evidence.

Assessment of Expert Opinion: An assessment of panel members' opinions through either informal or formal methods. Explicit documentation of methods and rationale needed.

Summary of Benefits and Harms: A comparison of the potential benefits and harms as determined by the scientific evidence and expert opinion.

Determinations of Appropriateness: Used to determine which practices are appropriate, inappropriate or of uncertain appropriateness. Because of the uncertainties of many clinical practices, the language describing these practices poses difficulties. They should provide broad boundaries of appropriateness that allows for differences of opinion, preferences, and values.

Assessment of Public Policy Issues

Resource Limitations: Limited resources and opportunity costs need to be considered if recommended services are expected to be used by patients or society. Controversy exists regarding how much costs should be considered in guideline recommendations.

Feasibility Issues: Real world practice conditions must be considered. Constraints of time; usability; staff concerns; reimbursement and liability issues; conflicts with local standards; and patient concerns must be addressed.

Guideline Document Development and Evaluation

Drafting of Practice Guideline Document: Practice guidelines should provide clear information about "what to do" and the method by which they were developed.

Peer Review: Review by relevant content experts is necessary to ensure scientific and clinical validity and to allow for broad input on content and policy issues.

Recommendations for Dissemination, Evaluation, and Updating: Specific plans for dissemination to the target audience, evaluation research to determine changes in practice patterns and health outcomes and timing of updates should be included.

Recommendations for Research: The clarification of research needs and highlighting of important gaps in scientific evidence are important in promoting a future research agenda.

The existence of formal methods for developing guidelines is relatively new. Many of the newer methods are very expensive and consume considerable time and effort. It may be that these newer methods are not worth the added cost and effort and will not be better than the more informal consensus techniques. Some have shown that practice guidelines, no matter how they were developed, do not significantly change behavior or improve the quality of care (Grilli et al., 1991; Headrick et al., 1992; Lomas et al., 1991). It appears that the most important factor for changing practice behaviors, improving the quality of care, and possibly lowering health care costs is how practice guidelines are disseminated.

AWARENESS, ASSIMILATION AND ADOPTION OF NEW KNOWLEDGE

A gap exists between the best known medical care and the care that is often delivered to patients. One reason for this discrepancy is the cost of medical care. Two other possible reasons for this gap include a lack of knowledge needed for optimal patient care and a slow acceptance of "new knowledge." This conservativeness may be due to an understandable hesitancy to embrace a new treatment/drug/procedure that has not been tested over a long period of time and which may have serious long term consequences (e.g., thalidamide). The slow acceptance (and assimilation) may also be due to the process used to disseminate the new knowledge. An understanding of what physicians' attitudes are toward new knowledge is critical to its successful assimilation and acceptance. Several strategies have been tried to influence physicians' acceptance of new knowledge. The use of clinical practice guidelines represents one such strategy; however, their success in influencing physicians' practice behavior has been mixed.

There are four essential steps for guidelines to be effective in influencing physicians' practice behavior and thus improve quality of patient care: (1) there must be a link between the guideline adoption and improved patient care; (2) guidelines must be disseminated, learned, and understood; (3) physicians must agree with guideline recommendations; and (4) physicians must translate guideline recommendations into clinical practice. Proper attention to guideline development should provide the linkage required in step one. The dissemination of practice guidelines then becomes the next crucial step for "successful implementation."

Lomas and Haynes (1988) clarify the differences between the terms *dissemination* and *diffusion* in their review of strategies for the application of clinical practice recommendations. Dissemination is defined as the spread of knowledge from its source to health care practitioners. It includes any special efforts to ensure that practitioners acquire a working acquaintance with that knowledge. Diffusion is a passive subset of dissemination in which no special efforts are made to promote the spread of knowledge.

Some of the general methods that have been used to change physician behavior through an awareness and assimilation of practice guidelines are education, feedback, financial incentives, administrative rules, physician participation and the use of opinion leaders (Eisenberg and Williams, 1981).

EDUCATIONAL STRATEGIES

The use of practice guidelines as an educational strategy to influence physicians' behavior is the most common approach. Most educational efforts (e.g., journal articles, commercial detailing, advertising) are diffusion strategies. No special efforts are used with these strategies due to the common-sense expectation that physicians are constantly involved in making changes in their practice behavior and the belief that they will voluntarily incorporate well-analyzed valid information into their daily practices (Kane and Garrard, 1994; Geertsma et al., 1982). Unfortunately, the simple diffusion of innovative information through normal clinical channels (e.g., continuing medical

education, national consensus statements, published studies) often has not significantly changed practice behavior.

The traditional continuing medical education (CME) approaches (i.e., didactic courses) have not proved to be successful beyond increasing a practitioner's awareness of an issue (Lomas and Haynes, 1988). Even with the additional incentive of sanctions against physicians who fail to receive a minimum number of educational credits, CME programs have often demonstrated little measurable effect on practice behavior or patient outcomes (Weingarten and Ellrodt, 1992).

Hill et al. (1988) conducted a survey in which they sampled physician's awareness and use of practice guidelines issued as a result of a report produced by the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (JNC III). They reported that 62 percent of physicians were aware of the report; 56 percent of those aware of it never or infrequently referred to it; and 82 percent indicated that there had been "very little" if any change in their practice behavior as a result of the report. The authors concluded that the consensus report codified rather than altered the physicians' practice behavior.

Bjornson et al. (1990) described the effects on physician prescribing after the results of a clinical trial were published. They report that physicians who were mailed information on the results of a published clinical trial of agents used in treating congestive heart failure were no more likely to change their prescribing practices than physicians who did not receive the information.

Headrich et al. (1992) compared three approaches for improving compliance with the practice guidelines of the National Cholesterol Education Program (NCEP). They compared (1) a standard educational lecture, (2) a standard educational lecture and generic chart reminders, and (3) a standard educational lecture with timely patient-specific feedback with three similar physician groups. The results showed slight improvement in compliance with groups two and three and no differences in improvement across groups. Their conclusions raise questions about the effectiveness of education alone for improving compliance with the NCEP guidelines. These compliance results are similar to other published guidelines developed by nationally renowned experts and distinguished organizations. Little change in practice patterns and patient care have occurred, even when clinicians were aware of the recommendations. Studies show that education without other "incentives" is only marginally effective in achieving any predetermined goals (Weingarten and Ellrodt, 1992).

FEEDBACK

Traditional continuous quality improvement methods develop criteria for their important processes; measure adherence to the criteria; provide feedback on individual performance; and affect change to bring performance in line with the criteria (Burns et al., 1992). The use of feedback to improve an individual's performance is crucial for achieving an organization's goals. The most successful use of feedback occurs when individual performance is ranked with that of peers.

Winickoff and colleagues (1984) examined the use of peer comparison feedback with that of educational staff meetings and retrospective feedback of group performance in examining colorectal cancer screening rates. A comparison of three different intervention strategies used for improving compliance with the screening standard found that only the individual feedback comparison with peers resulted in any significant improvement of performance. The authors concluded that peer comparison feedback was a useful method for bringing about desired changes in performance.

Partners Health Plan (PHP) of Arizona utilized feedback of physician's practice patterns as part of their Continuous Quality Improvement (CQI) program (Burns et al., 1992). PHP's CQI program incorporated practice guidelines in the belief that they supported the autonomy of physicians, promoted quality of care for members, and yielded economic efficiencies. They believe that patient outcomes can only be improved if monitoring of guideline compliance is accomplished and physicians periodically receive information about their practice patterns. Monitoring is accomplished with retrospective reviews of aggregate compliance data as well as individual practice patterns. The physicians receive formal feedback at the appropriate specialty committee meetings and individual discussions about aberrant practices with one of the medical directors.

An example of this process was PHP's selection of cimetidine as the primary H2 receptor antagonist for peptic ulcer disease (PUD). After educational letters and discussions at physician committee meetings failed to change prescribing patterns the

physicians were provided with a list of all of their patients receiving ranitidine with a reminder of the criteria for its use. A long term follow up revealed a 37.5% decrease in prescribing ranitidine, a 27.1% increase in prescribing cimetidine and 10.4% increase for famotidine. The authors concluded that PHP's experience suggests that providers, if given the proper information, can assume responsibility for analyzing sources of variation in medical practice and can reduce this variation (Burns et al., 1992).

FINANCIAL INCENTIVES

Economic incentives and disincentives can shape clinicians' practice patterns. A number of studies have shown that clinicians will change their practice policies in response to changes in fee schedules. Lomas and Haynes (1988) give the absence of a reasonable remuneration schedule as one reason for the poor dissemination and application of preventive clinical practices. Eisenberg and Williams (1981) discuss how the Health Insurance Plan of Greater New York was successful in altering physician practices (resulting in reduced patient costs) by offering financial rewards to their member physicians. Other studies show mixed results for using financial incentives to influence prescribing practices (Raisch, 1990). Probably the most convincing evidence of the effectiveness of financial incentives to improve physician compliance with practice guidelines are the studies involving health maintenance organizations (HMOs). In situations where physicians are at risk for both financial penalties and rewards, HMOs have provided health care that costs 10% to 40% less than care provided comparable

populations under the fee for service system (Eisenberg and Williams, 1981; Christensen, 1994).

The American College of Physicians (ACP) has been in the forefront of medical professional societies in recognizing the need for sound policies to guide appropriate clinical practices and in calling for a payment system that is clinically effective (White and Ball, 1990). Their call for the proper incentives for physicians to integrate practice guidelines into their daily routine are summarized in the following principles: (1) always aim to pay appropriately for effective services; (2) avoid incentives for excessive, inappropriate, or ineffective care; (3) rest on objective, quantifiable data rather than on historical opinions or "anecdotes;" (4) be open to innovation and modification in the face of well-founded changes in medical practice; and (5) take the patient into account.

ACP feels that clinical practice guidelines are an integral part of good medical practice and that good medical practice should drive a rational payment system (White and Ball, 1990). It is because of this philosophy that ACP has worked closely with BC/BS in their Medical Necessity Program for so many years. ACP's involvement stems from the knowledge that payers will develop their own criteria for judging physicians' practices with or without physicians' input. ACP's goals are to insure that payers' guidelines reflect appropriate medical practices, that physicians determine what is medically necessary, and that payers pay an appropriate amount for it.

ADMINISTRATIVE RULES

Administrative rules are a general term to describe programs that seek to change physician prescribing or more generally their medical management practices. Some examples are prescribing restrictions, required consultations, enforcement policies, and institutional policies and procedures. The emphasis of these rules ranges from the voluntary and educational, to mandatory with penalties (financial) imposed on physicians whose utilization patterns do not conform to proposed guideline recommendations. These programs while grounded in reviews of the best available evidence, often have cost containment as their driving influence. One example may be the practice in many hospitals to therapeutically substitute the antibiotic cefotetan for cefoxitin because the latter drug is less expensive and the microbiological spectrums are nearly identical.

PHYSICIAN PARTICIPATION

Studies have shown that physicians often fail to follow published recommendations even when they agree with them. One study by Lomas et al. (1989) compared the cesarean section rates of hospitals and obstetricians with their self-reported rates and found the actual rates to be 15% to 49% higher than the reported rates. One explanation is a lack of physician ownership in guideline development and assimilation. Lomas and Haynes (1988) consider the key factors in changing physician practice patterns to be timely feedback of practice data, the use of explicit criteria that the

clinicians have helped determine, and the use of *peers* rather than "outsiders" to administer the program.

The Harvard Community Health Plan (HCHP), a combination staff and group model HMO involved their physicians in every phase of their clinical guidelines program. In the early development of their program an advisory group made up of clinicians and managers addressed concerns about cookbook medicine, increased malpractice risks and fears about top-down implementation of clinical standards. The development of their clinical algorithms was done almost exclusively by clinicians who volunteered their time. The goals of the clinicians in the Harvard plan were to improve medical care for their patients by: (1) developing, disseminating, and up-dating uniform state-of-the-art guidelines for optimal cost-effective evaluation and management of important clinical problems; and (2) incorporating the guidelines into their daily practice routine in a manner that facilitates their practice management. In other words, the evidence is reviewed and the guidelines developed by the clinicians who will implement them in patient care (Woolf, 1992; Gottlieb et al., 1990). This method of involving clinicians in clinical quality improvements gives them an opportunity to gain new insights into previously unknown practice variations.

Some speculate that guidelines are used differently by practitioners according to their level of participation in their development (Audet et al., 1990). Grimshaw and Russell (1993) in their review of the effects of clinical guidelines on medical practices identified a study where family physicians' compliance with guidelines increased by 32%

when they had been involved in their development compared to an increase of only 22% when they had been developed by others. They also suggest a classification of clinical guidelines that ranks their probability of being effective based on their development strategy. In it they rank internally developed guidelines as having a high probability of being effective and externally or nationally developed guidelines as having a low probability of being effective.

It seems reasonable to assume that if individual clinicians are going to be held accountable for deviations from established clinical practices then they will want a say in how the guidelines are developed, adopted and assimilated. Also, if the goal of practice guidelines is to alter divergent behavior, physicians will be more likely to comply if they are involved in the process of assessing their own practices (Kassirer, 1993).

OPINION LEADERS

A physician's discussions and consultations with his or her colleagues is frequently cited as a significant influence in decisions to change clinical practices (Lomas and Haynes, 1988). "The educational influential" has been identified as particularly important in providing advice, guidance, and in altering physicians' practices. While this influential person could be anyone (e.g., pharmaceutical company representative, other health professional), the most credible message is delivered by a face to face discussion with a respected colleague.

Lomas et al. (1991) tested this hypothesis by using "educationally influential opinion leaders" as determined by their local colleagues. Physician compliance with a national practice guideline for the management of women with previous cesarean sections was evaluated. The guideline recommended clinical actions to increase the trial of labor and vaginal birth rates. The strategies used to encourage local compliance with the practice guidelines were medical chart audits with departmental feedback to physicians and education using physician opinion leaders. After 24 months the trial of labor and vaginal birth rates in the audit and feedback group were no different from those in the control group, but the rates were 46% and 85% higher, respectively, among physicians educated by an opinion leader.

The authors concluded from these results that local activities may have the advantage of placing control of the change process in the hands of those affected physicians, thereby removing the perception that guidelines are outside directives. Further, when additional data on clinical outcomes was evaluated, it was confirmed that opinion leaders encouraged the appropriate implementation of the practice guidelines and improved the quality of care.

Although all of these methods of implementing clinical practice guidelines have had some success in changing practice behaviors, the most success has involved combining a number of different approaches. Often a combination of education, timely feedback, and various administrative incentives or disincentives will coerce physician acceptance of guideline recommendations. This acceptance should translate into either

improved patient care or a reduction in health care costs without compromising patient outcomes or satisfaction.

PHYSICIAN ATTITUDES TOWARD CLINICAL PRACTICE GUIDELINES

As can be seen from the previous discussion, the processes for guideline development are much more rigorous today than earlier efforts by groups like the NIH and other professional standard review organizations. However, given the mixed results of practice guidelines, one must ask if the average practicing physician cares whether a published guideline is derived from the consensus of a respected sub-specialty group, from an expert group assembled by the NIH, or from a group of researchers using meta-analysis and a modified Delphi technique (Weingarten and Ellrodt, 1992).

In the past, many physicians and particularly organized medicine have reacted vehemently against any suggestion of systematic efforts to develop standards of care, practice guidelines or anything that could be interpreted as "cookbook medicine" (Chassin, 1988). They have successfully sued insurers who have tried to define what an acceptable medical practice was for their patient (Anderson et al., 1993). The root of this defensiveness that provokes such passionate responses in some and a refusal to comply in others seems to be that:

(1) Medical practice may be reduced to following simple and inflexible rules.

(2) The fear of being forced to follow rigid recipes when individual patient factors may require these formulas to be modified.

(3) The fear of increased legal liability if physicians diverge from the guideline and a bad outcome results.

(4) The concern that "standards of care" may stifle innovation in medicine.

While some of these concerns may have legitimate foundations, all of them can be addressed by the careful design of the processes for development and the mechanisms for implementation (Chassin, 1988). Good clinical practice guidelines are designed to recognize as many potential exceptions as is feasible. The best ones take into account the medical complexity and uncertainty of medical care. They are rarely simple and straight forward.

The issue of the legal liability of practice guidelines has often been analyzed and discussed (Tunis et al., 1994; Hirshfeld, 1990). There seems to be no consensus regarding whether practice guidelines can reduce the number and costs of malpractice claims. The Associate General Counsel for the AMA, Edward B. Hirshfeld, is of the opinion that while practice parameters will have a role in malpractice litigation, "they will not be as inflexible standards of care that condemn physicians who depart from them for legitimate reasons" (Hirshfeld, 1990, p. 1562). He argues that "practice parameters" may make the results of malpractice litigation more fair since many of the verdicts with the current system do not seem to be based on sound medical considerations.

Some feel that practice guidelines developed by a respected medical body have changed the legal standard for negligence. The standard is no longer comparison to the care rendered in the community. Practice guidelines have made the legal standard a

national standard. Compliance with these national standards should provide substantial protection from legal liability. However the occurrence of a bad outcome following medical care that is in conflict with well-developed standards could be considered strong evidence of negligence. The fact that medical experts are still needed to testify on how practice guidelines pertain to the case at hand would seem to indicate that practice guidelines will not appreciably change the litigation landscape (Hirshfeld, 1990).

The concern that standards of care may hinder innovation in medicine by prescribing limits for medical practice may have some validity. This would not be a bad thing. Much of the blame for our current health care crisis has been put on the wide-spread adoption of new technologies (Neumann and Weinstein, 1991). Much of the diffusion of this new medical technology is indiscriminate and occurs in the complete absence of data proving its efficacy. Properly developed standards of care may be a solution to this problem by forcing the burden of proof for a new technology's efficacy and safety on its developer (Chassin, 1988).

The process for developing good practice guidelines includes recommendations for review. They are updated as necessary to remain consistent with the best available research data and clinical judgment. They are inherently dynamic judgments made at one point in time. This process makes them uniquely capable of promoting innovations of proven efficacy. In contrast, some of the more informal methods of the past assumed that the standard of practice is what everyone else has been doing, proven or otherwise.

Despite the great expectations of clinical practice guidelines very few studies have been conducted that have assessed how physicians feel about them. One study attempted to assess internists' familiarity with, confidence in, and attitudes toward clinical practice guidelines issued by various organizations (Tunis et al., 1994). A random sample of ACP members was surveyed regarding guidelines issued by ACP and other medical, research, and government organizations. The results showed that familiarity with guidelines varied from 11% of responders for the ACP guideline on exercise treadmill testing to 59% of responders for the National Cholesterol Education Program guideline. A high level of confidence was reported in ACP guidelines by 82% of the responders but by only 6% for BC/BS guidelines. Subspecialists had greatest confidence in guidelines developed by their own subspecialty organizations. It was thought that guidelines would improve the quality of health care by 70% of responders, increase health care costs by 43%, be used to discipline physicians by 68%, and make practice less satisfying by 34%. Their conclusions were that ACP members recognized the potential benefits of practice guidelines but that many were concerned about the possible effects they would have on clinical autonomy, health care costs, and satisfaction with clinical practice.

SUMMARY

The escalating costs of health care has led to research that examines all the cost elements, including the processes clinicians use to select disease treatment. This

research on treatment costs and patient outcomes has led many to conclude that for many diagnoses there is a preferable treatment regimen, one superior to all others. Consequently this has led to a proliferation of "practice guidelines," designed to standardize medical treatment and reduce costs. Despite resistance by some physicians, the practice guideline movement is gaining momentum. Managed care administrators with a eye toward the bottom line (i.e., either patient outcomes or dollars) may bring pressure on "outlying" physicians to conform to national or local standards of care. This may bring with it a new willingness to entrust more protocol-driven treatment decisions to other health professionals.

The outcomes movement, with its promulgation of practice guidelines, fits well with pharmacy's "mission" to serve society as the profession responsible for the appropriate use of medications to achieve optimal patient outcomes. The challenge is for pharmacists to be an integral part of the practice guideline movement.

The existing medical literature does not meet all the needs of today's clinicians. They desire more specific, directive and timely information. The timely access to information will be handled by new developments in computer technology and information sciences. The type of specific, directive information that they require will be contained in something that sounds like a practice guideline or a practice parameter.

Will a guideline help or hinder? Will a guideline even be accepted by physicians?

The critical questions regarding tomorrow's guidelines are: (1) Who will be issuing them? (2) How will they be developed? (3) How will they be used? (4) How will they be accepted? and (5) Will they have any positive effect on patient outcomes?

Dr. David Eddy (1993) has suggested that whoever controls practice policies in the future will control medicine. Who will have control of practice policies and who will be issuing them will be one of the future battles in medicine. Fortunately, many cooperative efforts are under way to reach agreement on how guidelines will be developed, what evidence will be sufficient, and how guidelines will be used. Research is still needed to address the weaknesses of guideline development. First, the goals of guidelines tend to be vague and there is a lack of criteria by which to evaluate progress. Second, the methods for developing guidelines vary considerably. Third, more attention is needed regarding implementation of guidelines and their practical application in real practice settings. Fourth, a commitment is needed to the scientific evaluation of the impact of guidelines on professional behavior, patient outcomes, and health care costs. Without addressing these weaknesses, practice guidelines may lack the crucial characteristics (clarity, specificity, flexibility, reliability, and validity) that are likely to affect both their acceptance by practitioners and their impact on clinical practice (Audet et al., 1990).

No attempt to control the excesses of health care will be successful without addressing the decisions physicians make about health care interventions. Their acceptance of guidelines is crucial to the success of any long term efforts at health care

reform. Without an effort to find out what physicians think about practice guidelines (e.g., development and implementation), the promise of guidelines may not be realized. Research into physicians' confidence in and familiarity with clinical practice guidelines is needed in order to better ascertain our development and dissemination strategies for the future.

Forces are in place that will ensure a place for clinical practice guidelines in future medical decision making. Medical organizations, health services researchers, payers of health benefits, and public officials all have an interest in guideline development and implementation. Public concern over spending on health care and dissatisfaction with international comparisons showing the United States near the bottom of the list of developed nations for selected health indicators fuels the urgency to fix our system. The American public is paying more for health care and they want assurances they are getting their money's worth. Guidelines are being vigorously promoted as a means for improving the effectiveness of the health care system. Advocates feel that guidelines have the ability to address: (1) the widespread variations in clinical practices for a given condition, (2) the evidence of inappropriate or wasteful care, (3) an increasing interest in the quality of health care, and (4) the escalating costs of care. However, because of the rush by those who see guidelines as a panacea to our problems, there is less optimism that guidelines can live up to their promise. Nonetheless the stakes are too high to allow the promise of practice guidelines to fade away like the Professional Standard Review Organization (PSRO) program of the 1970s. If we can build on the

strengths of the current system of developing and applying guidelines and overcome the weaknesses intrinsic to the organizational and political environment of health care, then guidelines may yet fulfill their promise.

CHAPTER 3

METHODOLOGY

A self-administered questionnaire, with explanatory cover letter, was used to obtain the data needed to meet the research objectives and test the hypotheses.

SUBJECTS

The subjects consisted of three distinct populations of federally employed medical practitioners practicing at three hospitals in southern Arizona. Medical practitioners for our purposes include physicians, nurse practitioners and physician assistants. Population one consisted of physicians and nurse practitioners from the Tucson Veterans Affairs Medical Center (VAMC). Population two consisted of Air Force and civilian physicians, nurse practitioners, and physician assistants from Davis Monthan Air Force Base (DMAFB) in Tucson, Arizona. Population three consisted of Army and civilian physicians and nurse practitioners from Raymond Bliss Army Community Hospital (RBAH) in Sierra Vista, Arizona. Civilian practitioners under contract with the federal government and working in the military medical facilities were included in the survey. Since these practitioners practice in accordance with the same policies, regulations and restrictions of active duty military practitioners, it was felt that they would be affected similarly by CPGLs. For the purposes of this discussion, these civilian contract practitioners are not distinguished from active duty military practitioners.

The lists of medical practitioners were obtained from the personnel departments at each hospital. They include practitioners with medical privileges who were currently on the active staff during the time of the questionnaire administration.

INCLUSION CRITERIA

Population One - VAMC

Medical practitioners who were permanently employed or undergoing residency or fellowship training at VAMC during the of time of the questionnaire administration were eligible for inclusion.

Population Two - DMAFB

Active duty and reserve Air Force medical practitioners who were assigned to DMAFB hospital during the time of the questionnaire administration were included. Also included were civilian physicians under contract with DMAFB hospital during the time of the questionnaire administration.

Population Three - RBAH

Active duty and reserve Army medical practitioners who were assigned to RBAH during the time of the questionnaire administration were included. Also included were civilian physicians under contract with RBAH during the time of the questionnaire administration.

EXCLUSION CRITERIA

The project sought the opinions and level of familiarity and confidence of medical practitioners whose practice may be influenced or impacted by CPGLs. Since some medical practitioners' practices may not be impacted by CPGLs, certain categories of physicians were excluded. Categories of physicians who were not contacted included pathologists, radiologists and surgical specialists (e.g., ophthalmologists, plastic surgeons). It was felt that the scope of their practices would expose them to few CPGLs. This was especially true of the VAMC group, many of whom never would have occasion to treat migraine headache patients and thus would not be familiar with the VAMC's migraine guidelines.

INSTRUMENT DEVELOPMENT

The questionnaire was patterned largely after those developed for studies conducted by Tunis et al. (1994) and Weingarten et al. (1995). The statements used to describe CPGLs came from both studies with minor alterations. The organizations used in the items dealing with confidence and familiarity came largely from the study by Tunis and colleagues, with two additional organizations added. The additional organizations (i.e., respondents' practice institution and the DOD Pharmacoeconomic Center) were believed to have some importance to practitioners at the three sites. The items relating to the importance of different methods used in guideline development came from published literature (Eddy, 1990b; Woolf, 1992). The items relating to the importance of different

guideline characteristics came primarily from Audet and colleagues (1990). Specific items relating to the VAMC's migraine management guidelines stemmed from the desire of the neurology and pharmacy services at the Tucson VAMC to evaluate the impact of a locally developed guideline on physician practice patterns. The specific demographic information collected came from published articles highlighting variation among physicians' attitudes and practice patterns based on these characteristics (Eisenberg, 1985; Pineault, 1977; Weingarten et al., 1992; Hayward et al., 1994; Tunis et al., 1994).

Scale development was accomplished using techniques discussed by Devillis (1991). Design, format and layout of the instrument was patterned after examples provided by Fowler (1993). Instrument form and appearance was aided by the work of Fink and Kosecoff (1985).

PRE-TESTING THE INSTRUMENT

The questionnaire instrument was reviewed by three VAMC physicians, one Air Force physician, one Army physician, and seven pharmacists. The Associate Chief of Pharmacy for Clinical Services (ACPCS) at the VAMC solicited input from the VA physicians. It was hand delivered to the Chief of Pharmacy at RBAH who distributed it to the Army physician and it was hand delivered to the Chief of the Medical Staff at DMAFB. Numerous ideas and helpful feedback were provided and incorporated into the instrument prior to conducting the pilot study.

Pilot testing of the initial instrument was conducted with 15 colleagues in a survey research design class at The University of Arizona, including the class instructor. Included was a cover letter that requested feedback on: (1) the amount of time in minutes required to complete the survey; (2) general comments about the questionnaire; and (3) any portions that were unclear, poorly worded, or seemed to be soliciting a particular response. Many of their comments were used to make modifications to the questionnaire.

PILOT STUDY RESULTS

The purpose of the pilot study was to determine the amount of time required to complete the questionnaire and to detect any unclear portions or instrument problems. The average reported amount of time required to complete the survey was five minutes. This reported time was used in the directions on the final survey instrument. The relatively short amount of time needed to complete the survey was thought to be critically important in order to achieve an adequate response rate from our ultimate target group of physicians, nurse practitioners and physician assistants.

A check for internal consistency reliability (Cronbach's coefficient alpha) was performed on the ten questionnaire items used (1 through 10) to assess medical practitioners' attitudes toward CPGLs. Cronbach's coefficient alpha was calculated as 0.58 for the pilot results from the survey research class. This pilot group however was

only evaluating the questionnaire for design, format and clarity, not content. This group was not representative of the ultimate target group of federal medical practitioners.

SURVEY INSTRUMENT

The survey instrument used in the pilot study underwent numerous modifications before it was ready for use. The majority of the changes involved format and layout modifications. Since the final survey instrument differed significantly from the instrument used in the pilot study, a description of the final survey instrument will be presented here.

The study instrument has three versions (Appendix A, B, C). The versions used at the military hospitals were identical except for two items that asked for the respondents' level of confidence in and familiarity with CPGLs issued by their own practice institution. One version referenced DMAFB hospital as the practice institution and the other version referenced RBAH as the practice institution. The only other difference for the Air Force and Army hospital questionnaires was the point of contact referenced on the cover letter. Both surveys referred all questions to the Chief of the Hospital Pharmacy as the contact person. The VAMC questionnaire referenced The Associate Chief of Pharmacy (ACPCS) as the contact person. The VAMC's version of the questionnaire contained an additional section that asked medical practitioners about a locally developed migraine headache management practice guideline. In addition, it did not contain two questions that the military versions had regarding practitioners'

confidence in and familiarity with practice guidelines issued by the DOD's Pharmacoeconomic Center (PEC). The instrument for both military hospitals consisted of 34 items in four parts, over three pages (cover letter included). The instrument used at the VAMC consisted of 39 items in five parts over four pages (cover letter included). In addition, each version contained a demographic section. A brief description of the questionnaire items is provided below:

Section One: This part of the questionnaire consists of five positively and five negatively worded statements about clinical practice guidelines (items 1-10). All statements were scored on a five-point Likert-type scale. Each response represented the respondent's level of agreement with the statement. The response choices ranged from strongly disagree to strongly agree (1 to 5, respectively).

Section Two: This part of the questionnaire consisted of six questions (items 11-16) asking respondents their level of confidence in CPGLs issued by various organizations. Using a five-point response scale, the response choices ranged from very low to very high (1 to 5, respectively). Item 11 asked about confidence in CPGLs overall, and items 12-16 asked about confidence in CPGLs issued by various organizations (i.e., ACP, federal agencies, a specialty organization, third party payers and the respondents' practice institution). The questionnaire for the military hospitals contained an additional question asking about the level of confidence in guidelines issued by the DOD's PEC.

Section Three: This part of the questionnaire consisted of six questions (items 17-22) asking respondents how familiar they were with CPGLs developed by various groups.

Using a five-point response scale, the response choices ranged from very low to very high (1 to 5, respectively). Item 17 asked about familiarity with CPGLs in general and items 18-22 asked about familiarity with CPGLs developed by various organizations (i.e., ACP, federal agencies, a specialty organization, third party payers, and the respondents' practice institution). The survey for the military hospitals contained an additional question asking about the level of familiarity with guidelines issued by the DOD's PEC.

Section Four: This part of the questionnaire consisted of five questions (items 23-27) asking respondents the importance of different methods used in guideline development and five questions (items 28-32) asking respondents the importance of different guideline characteristics. Using a five-point response scale, the response choices ranged from not at all to very high (1 to 5, respectively).

Section Five: (VAMC only) This part of the questionnaire consisted of seven questions (items 33-39) that asked respondents *specifically* about the VAMC's migraine management guidelines. Items 33-34 asked about the respondents *familiarity* with the VAMC's migraine guidelines and how they became aware of them. Items 35-36 asked about the *effect* of the VAMC's migraine headache guidelines on their care of migraine patients and clinical decision making. Item 37 asked the respondents to rank what they *believe* are the primary, secondary and tertiary goals of the VAMC's migraine guidelines. Item 38 asked the respondents to indicate the progressive order in which they would select five commonly used migraine drug treatments for an acute migraine attack (first

through fifth choice). Item 39 asked the respondents to estimate the percentage of migraine patients for whom they would prescribe prophylactic therapy.

Section Six: This part of the questionnaire requested demographic information. The items included gender, type of medical practitioner (i.e., physician, nurse practitioner, physician assistant), military rank, time of service, level of post graduate physician training (i.e., resident, intern, fellow, attending), board certification or eligibility, the year graduated from medical school (physicians) or the number of years in practice (nurse practitioners and physician assistants), primary specialty area, percentage of time devoted to patient care, and affiliation with professional or specialty associations. Some demographics were military specific (i.e., military rank, time of service) and were only asked on the military versions of the questionnaire. The item relating to the level of post-graduate training was only asked on the VAMC version.

SCORING PROCEDURE

The responses from items 1 through 10 were combined to comprise a single attitude scale score. This is similar to the procedure that Tunis and colleagues used; however, they presented an overall measure of physician attitudes based on eight statements (four positive and four negative) with possible scores ranging from eight to forty. Scoring for the attitude scale score was accomplished by taking the negatively worded statements (2, 4, 6, 8, 10), reverse scoring them and summing with the scored positively worded statements (1, 3, 5, 7, 9). Assigning values of 0, 2.5, 5.0, 7.5 and 10

for each response resulted in a maximum score of ten for each statement. The lowest possible score on each statement was zero. When the ten individual statement scores were summed, it resulted in a maximum attitude scale score of 100 for a respondent who had *favorable* attitudes toward CPGLs and a minimum attitude scale score of zero for a respondent who had *unfavorable* attitudes toward CPGLs. Individual responses to items one through ten were also evaluated independently. These responses were scored one to five (strongly disagree to strongly agree respectively) according to the response indicated for the questionnaire item. All other responses (items 11-32) were scored one to five in the same manner.

VALIDITY

The validity of an instrument is probably the most important indicator of its quality. To that end, an instrument is valid to the extent that it measures what it intends to measure. Content validity of the survey instrument was evaluated through a test of its face validity. This was accomplished through a review of the instrument by three VAMC physicians, one Air Force physician and one Army physician. Their appraisals of the instrument with minimal alterations to the attitudinal statements (items 1-10) serve to support its validity as a research tool. Additionally, the validity of using the statements in items one through ten as a basis to measure medical practitioners' attitudes toward CPGLs is supported by the source of the statements from the published literature (Tunis et al., 1994).

RELIABILITY

An instrument is reliable when it produces consistent results under similar circumstances. One way to determine the reliability of an instrument is the test-retest method. This method measures the consistency of scores over time. In this study, where the questionnaire was administered one-time only, this method could not be used. Another method of estimating reliability is to assess the internal consistency of multi-item scales included in the instrument (Cronbach's alpha reliability coefficient). An estimate of internal consistency was calculated for the attitude scale (items 1-10) of the instrument. Alpha reliabilities for the three populations in the study were 0.73 (DMAFB), 0.73 (VAMC) and 0.81 (RBAH), with an overall reliability of 0.77.

STUDY DESIGN

A self-administered questionnaire was administered to 163 federal medical practitioners in order to assess their attitudes toward, confidence in and familiarity with clinical practice guidelines. All questionnaires were either delivered by intra-hospital mail, routed through hospital clinics, delivered at medical staff meetings or personally delivered to practitioners. The questionnaires contained a cover letter explaining the purpose of the questionnaire, why they were selected and the importance of their response. It stressed that participation was voluntary and that all responses would remain completely confidential. The name of the principal investigator and his affiliation appeared on the cover letter. The point of contact for each study site was the pharmacist

in charge with whom the medical practitioners were most familiar (see Appendix A, B, C). Identifying code numbers were placed on the questionnaires to facilitate non-response follow-up. Different procedures were used at each medical facility to solicit the medical practitioners' support for completion of the project The procedures are outlined below:

Population One (VAMC)

After receiving approval for the project from The Research and Development Committee of the VAMC on March 27, 1996, the distribution of the surveys began on April 1, 1996. Distribution, collection and follow-up efforts continued through April 30, 1996. The ACPCS was responsible for coordinating the distribution of the questionnaires to the staff.

Delivery of the questionnaires was accomplished by the ACPCS and clinical pharmacists personally delivering them at clinics throughout the medical center. A brief description of the project was given verbally to the practitioners prior to their completion of the questionnaire. The cover letter (on VA letterhead) asked respondents to return the questionnaire to the pharmacy office. Between two and four weeks after delivery of the questionnaires, non-respondents were contacted and asked to complete the surveys. The ACPCS made copies of the questionnaire available as needed. Additionally, the ACPCS conducted follow-up with non-respondents either personally or via telephone.

Population Two (DMAFB)

After receiving approval for the project from the Chief of the Medical Staff at DMAFB hospital, the questionnaires were distributed starting on February 20, 1996. Distribution, data collection and follow-up efforts continued through March 22, 1996. The Chief of DMAFB's hospital pharmacy was responsible for delivering the questionnaires to the medical staff. The questionnaires were delivered via the hospital's mail distribution system. The cover letter asked respondents to return the questionnaire to the point of contact listed. The principal investigator coordinated follow-up with the non-respondents. Approximately two weeks after delivery of the questionnaires, non-respondents were contacted by letter (see Appendix D) and asked to complete and return the survey. Additional copies of the questionnaire were provided as needed.

Population Three (RBAH)

The principal investigator addressed a quarterly meeting of medical practitioners at RBAH on January 26, 1996. This "mandatory" meeting was attended by over 90 percent of the practitioners assigned to the hospital. After being introduced by the Chief of the Hospital Pharmacy, the investigator, in an effort to solicit their support, explained who he was, what he wanted to do and why. After receiving approval for the project from the Deputy Commander of Clinical Services at RBAH, the questionnaires were distributed starting on February 20, 1996 (see Appendix E for approval letters). Distribution, data collection and follow-up efforts continued through March 22, 1996.

The Chief at RBAH's Pharmacy was responsible for coordinating the delivery of the questionnaires to the medical staff. The questionnaires were delivered via the hospital mail distribution system. The cover letter asked respondents to return the questionnaire to the point of contact listed. The questionnaire referenced the discussion at the quarterly meeting and asked respondents to complete the questionnaire and return it to the main hospital pharmacy or drop it in distribution. The principal investigator coordinated follow-up with the non-respondents. The questionnaire was designed so that when folded, a pre-printed routing address directed it to the pharmacy.

Approximately two weeks after delivery of the questionnaires, non-respondents were contacted by phone and asked to complete and return the survey. Additional copies of the questionnaire were provided as needed. Approximately three weeks after delivery of the questionnaires, non-respondents were again contacted either personally or by phone and a further appeal was made, stressing the importance of their reply to the study results.

ASSUMPTIONS

1) The questionnaire was completed by the intended person.

2) The items were interpreted as intended.

3) The item responses reflect the actual attitudes, beliefs, and behaviors of the respondents.

4) Respondents were representative of the population of medical practitioners in the three federal hospitals.

LIMITATIONS

1) Results of the study may not necessarily be generalizable beyond the federal medical practitioners who participated in the study.

2) There is a potential for self-report bias.

3) There is a potential for acquiescent bias in the first section (1-10); however, the mixing of positively worded and negatively worded statements would reveal if this was present in any of the responses. No obvious cases of this existed.

4) There is a potential for social desirability bias in the responses given by the practitioners at the VAMC. The point of contact listed on the cover letter was one of the parties involved in the development of the migraine headache guideline addressed in the VAMC questionnaire and was involved in the coordination of the questionnaire distribution. The potential for social desirability bias occurring however was minimized by the fact that the VAMC does not use any "administrative actions" that might pose a threat to the practitioners. Further, the migraine management headache practice guideline itself, when developed, was issued only as a recommendation for treatment. Efforts were made to present the recommendations in as "non-prescriptive" a manner as possible.

DATA ANALYSIS

Data analysis was approached in two ways. One approach utilized descriptive statistics in which tables of summary data were provided. The second approach utilized the inferential techniques of one way analysis of variance (ANOVA), independent groups t-tests, and chi-square goodness of fit and association tests. Pearson product-moment correlation coefficients were used both descriptively and inferentially. All research hypotheses were tested at the significance level of alpha ≤ 0.05. Descriptive and inferential statistics were performed using *Systat for Windows* computer software, version 5.04. For purposes of this research, Likert-type rating scale data was assumed to have interval characteristics. The general analytical techniques used were as follows: A comparison of differences among the three population groups according to their attitudes toward, confidence in, and familiarity with CPGLs was accomplished using ANOVAs. The Tukey Highly Significant Difference (HSD) test was used for post hoc analysis of differences found with the ANOVAs. Differences between groups was tested using independent group t-tests. The investigation of a relationship between the confidence items and the familiarity items was accomplished using the Pearson product-moment correlations. The investigation of the representativeness of the respondent population and in the responses given for the goals of the VAMC migraine management recommendations was accomplished with a chi-square analysis.

CHAPTER 4

RESULTS AND DISCUSSION

Survey instruments were delivered to a total of 163 medical practitioners. Distribution of the instrument began on February 20, 1996 at DMAFB and RBAH and data collection was terminated on March 22, 1996. Distribution of the instrument began on April 1, 1996 at the VAMC and data collection was terminated on April 30, 1996.

RESPONSE RATE

A net response rate of 83.4% (136/163) was obtained by the end of the data collection period. Group response rates were 84.4% (65/77) for the VAMC; 82.6% (38/46) for DMAFB; and 82.5% (33/40) for RBAH. Three surveys were returned from the VAMC after the end of the data collection period and were not used in the analysis. All other surveys were usable, although two surveys omitted a single response to one of the items (1-10) used to create the attitude scale score. Rather than omitting the two respondents with a single missing data point and compromising the power and generalizability of the study the group item means were substituted for the missing points. Other questionnaires with missing responses were reported as such and are reflected in the frequencies. None had to be rejected due to a high number of omissions. A detailed survey response description is found in Table 1.

Table 1. Response Rate

Survey Result	VAMC	DMAFB	RBAH	Total
Surveys delivered	77	46	40	163
Surveys returned	65	38	33	136
Percent returned	84.4	82.6	82.5	83.4
Refused to participate	0	2	0	2
Unusable responses	0	0	0	0

The net response rate of 83.4% (136/163) was considered to be quite adequate. This figure is in excess of the 75% level that the federal government strives to achieve in its surveys (Fowler, 1993) and is greater than the 70% rate where most biases are thought to disappear (Salant and Dillman, 1994). The response rate was achieved without any special incentives for participation. Possible reasons for attaining this high response rate are (1) the brevity of the survey instrument, (2) the saliency of the topic, (3) careful construction and revision of the survey instrument and cover letter, and (4) the personal delivery of many of the survey instruments by familiar points of contact in each facility. In comparison, a similar survey conducted by Tunis and colleagues (1994) of a sample of members of the American College of Physicians achieved a response rate of 60%. However, his original sample consisted of 2600 physicians and relied exclusively on mail delivery of the surveys.

NONRESPONSE BIAS

Nonresponse bias was tested by evaluating respondents based on gender and practitioner type. Males represented 70.6% (115/163) of the population and 70.6%

(96/136) in the respondent group. Females represented 29.5% (48/163) of the population and 29.4% (40/136) in the respondent group. Physicians represented 85.3% (139/163) of the population and 84.6% (115/136) in the respondent group. Physician extenders represented 14.7% (24/163) of the population and 15.4% (21/136) in the respondent group. Chi-square "goodness of fit" tests were applied to these distributions. No significant differences were found on the basis of gender (Chi-square = .00005, df = 1) and practitioner type (Chi-square = .02963, df = 1). These results, in addition to the high response rate previously mentioned, indicated that respondents were representative of the target population and potential nonresponse bias was minimized.

Physicians were asked what year they graduated from medical school and physician extenders were asked the number of years in practice. From these questions years of practice were determined for all medical practitioners. Approximately two thirds of the respondents (68.4%) reported they had been practicing for less than 10 years. In comparison, Tunis et al. (1994) reported 50% of their respondents had been practicing for less than 13 years. The high percentage of respondents who reported they had been practicing for less than ten years in this study was not surprising. At the VAMC, the high percentage is due to the inclusion of medical residents, interns and fellows. Also, the military hospitals include many medical practitioners who are recent graduates from medical training. Many of these medical practitioners have incurred

military service obligations as a result of sponsorship of part of their medical training by the DOD.

Respondents were asked to list their primary specialty area. A category of *primary care* was assigned to all responses given for medicine, general medicine, internal medicine, family practice, ambulatory care medicine, general practice, primary care and aerospace medicine (primary care for pilots at DMAFB). This categorization results in a much higher percentage of primary care physicians than exists in the general Arizona licensed population (32%) using the same categorization terms (personal communication with Arizona Medical Association). The category of *other* was assigned for all additional responses. Special attention was given to the group of eight neurology residents and attending physicians at the VAMC. As the Chief of the Neurology Service at the VAMC was one of the principal parties involved in the development of the migraine headache management recommendations, it was thought that their responses to some of the questionnaire items would be very informative. All but one neurology resident responded to the survey (88.9%).

Respondents were asked to estimate the percentage of their time devoted to patient care. The responses were categorized to those involved in patient care 75% of the time or more and those involved in patient care less than 75% of the time. The categorization was done this way since almost all respondents indicated very high percentages of time devoted to patient care. Practitioners involved in patient care whose practices might be impacted by CPGLs were targeted. With this focus, it was not

surprising to discover a majority of respondents (83.3%) involved in patient care at least 75% of the time.

Physician respondents from the VAMC were asked to indicate what level of post graduate training they were in by checking either resident, intern, fellow, or attending. These designations represent all possible choices for VAMC physicians. The rationale for collecting this information centered on speculation that physician attitudes toward CPGLs and cost-containment may be related to their age and level of training (Greene et al., 1989). Table 2 contains a detailed response description based on gender, practitioner type, years of practice, primary specialty area, percentage of time involved in patient care, and level of post graduate training.

Table 2. Respondent Demographics

Demographic Group	VAMC	DMAFB	RBAH	Total	% of Total
Males	39	30	27	96	70.6
Females	26	8	6	40	29.5
Physicians	54	30	31	115	84.6
Physician Extenders [1]	11	8	2	21	15.4
Years of Practice: ≤ 10 [2]	53	23	15	91	68.4
Years of Practice: > 10	10	15	17	42	31.6
Specialty: Primary Care [3]	46	20	20	86	63.2
Specialty: Other	19	18	13	50	36.8
Patient Care: ≥ 75% [4]	47	33	25	105	83.3
Patient Care: < 75%	14	5	2	21	16.7
Residents	19	NA	NA	NA	35.2
Interns	9	NA	NA	NA	16.7
Fellows	4	NA	NA	NA	7.4
Attending	22	NA	NA	NA	40.7

[1] Physician Extenders consists of nurse practitioners and physician assistants.
[2] Years of Practice determined by year graduated from medical school for physicians and number of years of practice for physician extenders.
[3] Primary Care consists of medicine, general medicine, internal medicine, family practice, ambulatory care medicine, general practice, primary care and aerospace medicine practitioners.
[4] Percentage of a practitioners' time that is devoted to patient care.

HYPOTHESIS TESTING

ATTITUDE

Attitude scale scores were calculated as described under SCORING PROCEDURE in Chapter Three. An attitude scale score of 0 represents completely *unfavorable* attitudes toward CPGLs, while an attitude scale score of 100 represents completely *favorable* attitudes toward CPGLs. The scores ranged from a low of 22.5

(RBAH) to a high of 82.5 (VAMC). The similarity between the mean scale scores for the two military populations is quite interesting. The scores of 48.5 (DMAFB) and 49.4 (RBAH) would seem to indicate that overall these medical practitioners have fairly neutral attitudes toward CPGLs (neither unfavorable nor favorable). The mean score for medical practitioners at the VAMC (57.0) would seem to indicate attitudes toward CPGLs which tend to be more favorable. Two possible reasons for this difference may be the fact that the VAMC is a training site for physicians where attitudes may be more easily transferred from preceptors to physicians in post graduate training or perhaps a result of the VAMC's pharmacists' extensive involvement with practitioners on patient care teams.

Hypothesis 1: *There are no differences in the attitudes toward CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.*

In order to test Hypothesis 1 an ANOVA was performed to compare the mean attitude scale scores. In comparing the three mean scores the results showed a significant difference. Hypothesis 1 was therefore rejected. Using Tukey's HSD test isolated the difference as being between VAMC respondents and respondents at DMAFB and RBAH. No differences were found between DMAFB and RBAH respondents (Table 3).

Table 3. Mean (SD) Attitude Scale Score [1]

Respondent Group					
VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)	F Ratio	p value
57.0 (11.5) [a]	48.5 (11.6) [b]	49.4 (14.3) [b]	52.8 (12.8)	7.411	0.001

[1] Mean attitude scale score calculated by summing the converted scored responses from items 1-10. Possible scores range from 0-100, where 0 equals completely unfavorable attitudes, to 100 which equals completely favorable attitudes. Means with different letters are significantly different at alpha equals 0.05 (Tukey HSD).

In order to test Hypotheses 2 through 6, independent groups t-tests were performed comparing the attitude scale score means.

Hypothesis 2: *There is no difference in the attitudes toward CPGLs between physicians and physician extenders (i.e., nurse practitioners and physician assistants).*

The t-test results for Hypothesis 2 showed no significant difference. Hypothesis 2 was therefore retained. This was a little surprising given that CPGLs, if well designed, can provide specific, directive information to aid medical practitioners in making health care intervention decisions. One would think this would benefit nurse practitioners and physician assistants more so than physicians. Further t-test analysis of differences based on mean scores for the individual attitude items did show significant differences for the statement "good educational tools" ($t = -1.996$, $p = 0.05$, 134 df). Mean (SD) scores for the two groups were: physicians, 3.59 (0.87); physician extenders, 4.00 (0.77). It appears that physician assistants and nurse practitioners may feel stronger about the value of CPGLs as an educational guide. Given that CPGLs are designed to assist in clinical

decision making, it may be that the physician extenders' higher score on this item is a reflection of less extensive clinical training.

Hypothesis 3: *There is no difference in the attitudes toward CPGLs between medical practitioners who had practiced ten years or less and those who had practiced more than ten years.*

The t-test results for Hypothesis 3 showed no significant difference. Hypothesis 3 was therefore retained. It is conceivable if we had selected a shorter time frame, we might have seen a difference between more recent graduates and those who had been practicing for several years. Further t-test analysis of differences based on mean scores for the individual attitude items did show significant differences for the statements "an unbiased synthesis of expert opinion" and "likely to increase health care costs" ($t = -2.234$, $p = 0.05$, 131 df and $t = -2.203$, $p = 0.05$, 131 df, respectively). Mean (SD) scores for the two groups were: practitioners in practice for 10 years or less, 2.76 (0.89) and 2.58 (0.79), respectively and practitioners in practice more than ten years, 3.14 (0.89) and 2.92 (0.94), respectively. From these results it seems that practitioners with more experience may be more likely to agree with the statements of CPGLs as "unbiased synthesis of expert opinion" and "likely to increase health care costs." Certainly not everyone is convinced that CPGLs will lower health care costs (Kassirer, 1993) and concerns of biased CPGLs have been discussed previously (Woolf, 1992). It may be that medical practitioners who were practicing before the days of "health care reform" are even less convinced.

Hypothesis 4: *There is no difference in the attitudes toward CPGLs between medical practitioners whose specialty is primary care and those whose specialty is other than primary care.*

The t-test results for Hypothesis 4 showed no significant difference. Hypothesis 4 was therefore retained. This was surprising in that specialty medical organizations have been very active in developing and issuing practice guidelines to their members. Further t-test analysis of differences between specialty based on mean scores for the individual attitude items did show a significant difference for the statement "a convenient source of advice" ($t = 1.983$, $p = 0.05$, 134 df). Mean scores for the two groups were: primary care, 3.87 (0.61); non-primary care, 3.63 (0.74). It appears that medical practitioners involved in primary care tend to agree with the statement of CPGLs as a convenient source of advice more so than those not involved in primary care. One possible explanation for this is the necessity that primary care practitioners be able to diagnose and treat a wider variety of medical conditions than specialists. A CPGL may provide primary care practitioners with the kind of specific, directive information they need to effectively treat a condition they may be less familiar with.

Hypothesis 5: *There is no difference in the attitudes toward CPGLs between medical practitioners who are involved in patient care 75% of the time or more and those who are involved in patient care less than 75% of the time.*

The t-test results for Hypothesis 5 showed a significant difference. Hypothesis 5 was therefore rejected. It appears that medical practitioners who spend less time treating

patients have more favorable attitudes toward CPGLs compared to those who spend more of their time involved in patient care. Often, time not spent in patient care is spent with supervisory activities. If this is the case, perhaps these supervisory physicians have a perception that CPGLs may help control medical costs and prevent unwanted variation in medical practice among the practitioners for whom they are responsible.

Hypothesis 6: *There is no difference in the attitudes toward CPGLs between VAMC physicians involved in formal post graduate medical training (i.e., residents, interns and fellows) and those who are not involved in formal post-graduate medical training (i.e., attending physicians).*

The t-test results for Hypothesis 6 showed no significant difference. Hypothesis 6 was therefore retained. Although the results are not surprising given the results of Hypothesis 3, we had speculated that physicians recently graduated from medical school might have more favorable attitudes as a result of increased interest in guidelines over the last few years. Further t-test analysis of differences between VAMC physicians based on the mean scores for the individual attitude items also showed no significant results. It may be that physicians in training agree with the attitudes of those who are providing instruction, guidance, mentoring and supervison. Table 4 provides t-test results for Hypotheses 2 through 6 dealing with the attitude scale score comparisons.

Table 4. Comparison of Attitude Scale Scores Between Practitioner Groups

Comparison Groups	t-test Results			
	Mean (SD)	t	df	p
Physicians (n=115)	52.17 (12.84)	-1.360	134	0.183
Physician Extenders (n=21)	56.31 (12.59)			
Practice ≤ 10 years (n=91)	53.17 (12.84)	0.437	131	0.663
Practice > 10 years (n=42)	52.11 (13.38)			
Primary Care (n=86)	53.42 (13.38)	0.720	134	0.473
Non Primary Care (n=50)	51.77 (11.91)			
Patient Care ≥ 75% (n=105)	51.83 (12.69)	2.307	124	0.023
Patient Care < 75% (n=21)	58.81 (12.33)			
PGY Training [1] (n=32)	54.06 (10.46)	-1.391	52	0.170
Attending Physicians (n=22)	58.40 (12.38)			

[1] PGY Training includes Residents, Interns, and Fellows in Post Graduate Training

Individual item means (SD) for the 10 positively and negatively worded statements used to describe CPGLs were analyzed. Total item means ranged from 2.69 to 3.78. The means for items 1 and 3 describing CPGLs as "good educational tools" and "a convenient source of advice" would seem to indicate that many practitioners tended to agree with these statements. These results are comparable to those that Tunis et al. (1994) reported. Their study showed that 64% of respondents agreed or strongly agreed that guidelines were good educational tools while 67% agreed or strongly agreed they were convenient sources of advice. The mean for item 10 describing CPGLs as "likely to increase health care costs" would seem to indicate that many practitioners tended to disagree with this statement. This is in contrast with Tunis and colleagues (1994), who

reported that only 22% of respondents expected guidelines to decrease costs. While opinions on the role of guidelines in health care may have changed, any comparisons with the study by Tunis et al. (1994) must account for sampling frame differences. Five of the items means were in the 2.9 to 3.1 range (items 2,4,7,8,9) indicating that overall this group of medical practitioners was somewhat equivocal (3 = neither disagree nor agree) about these statements describing CPGLs. This is consistent with what Tunis and colleagues (1994) reported, except for item 8, "likely to be used in physician credentialing." Tunis et al. (1994) reported that 68% of respondents agreed or strongly agreed with the statement "likely to be used in physician discipline." Since we changed the wording from discipline to credentialing in our study (based on physician feedback that the phrase "physician discipline" was unclear), the items are not directly comparable. However, in this study, the response to item 8 suggests a different attitude toward the same type of punitive action arising from not adhering to a CPGL. Table 5 presents the means for items 1 through 10.

Table 5. Means (SD) for Attitude Statements [1]

Level of agreement with the statement: In general, CPGLs are...	Respondent Group			
	VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)
1. good educational tools	3.66 (0.94)	3.44 (0.89)	3.87 (0.65)	3.65 (0.87)
2. oversimplified or "cookbook" medicine	2.86 (0.81)	3.42 (0.92)	3.29 (0.84)	3.12 (0.88)
3. a convenient source of advice	3.81 (0.66)	3.60 (0.72)	3.93 (0.61)	3.78 (0.67)
4. too rigid to apply to individual patients	2.92 (0.91)	3.16 (0.89)	3.57 (0.97)	3.14 (0.95)
5. likely to decrease health care costs	3.33 (0.85)	3.13 (0.78)	2.84 (1.10)	3.16 (0.93)
6. a challenge to physician autonomy	2.78 (1.00)	3.50 (0.98)	3.51 (1.10)	3.16 (1.07)
7. an unbiased synthesis of expert opinion	2.86 (0.83)	2.68 (0.90)	3.15 (1.00)	2.88 (0.90)
8. likely to be used in physician credentialing	3.00 (0.77)	3.15 (0.89)	3.15 (0.97)	3.08 (0.85)
9. likely to decrease defensive practices	3.20 (0.87)	2.50 (0.86)	2.60 (1.00)	2.86 (0.95)
10. likely to increase health care costs	2.49 (0.79)	2.73 (0.72)	3.06 (0.97)	2.69 (0.85)

[1] 1=Strongly Disagree 2=Disagree 3=Neither Disagree nor Agree 4=Agree 5=Strongly Agree

CONFIDENCE

The results reported in Table 6 reflect the high (4) and very high (5) responses for item 11, which asked "Overall, how much confidence do you have in CPGLs?" and from items 12 through 17 which asked "How much confidence do you have in CPGLs issued by the American College of Physicians, federal agencies, a specialty organization, third party payers, your practice institution, and the DOD PEC?"

Table 6. Percentage Reporting High or Very High Confidence in CPGLs [1]

Source of Guidelines	Respondent Group			
	VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)
Overall	24.6	21.0	21.2	22.8
American College of Physicians	58.5	42.1	30.3	47.0
Federal Agencies	43.0	26.3	33.3	36.0
Specialty Organizations	58.5	57.9	60.6	58.8
Third Party Payers	1.5	0.0	0.0	0.7
Respondents' Institution	41.5	23.7	27.3	33.0
DOD Pharmacoeconomic Center	NA	2.6	15.1	8.4

[1] Possible confidence level responses ranged from 1=Very Low to 5=Very High

The results, broken down by respondent group are fairly consistent with the totals. The percentage of total respondents reporting high or very high confidence levels ranged from 58.8% for CPGLs issued by specialty organizations to 0.7% for CPGLs issued by

third party payers. In comparison, the results reported by Tunis and colleagues (1994) showed 60-70% of respondents reporting high or very high confidence ratings for guidelines produced by specialty organizations (i.e., American College of Cardiology, American Gastroenterological Association) to five percent for guidelines produced by third party payers (i.e., National Blue Cross/Blue Shield). The results reported here also compare favorably with a similar study by Weingarten et al. (1995) that surveyed primary care physicians. They reported high and very high confidence levels in guidelines produced by a specialty organization (American Cancer Society) in 70% of their respondents and high and very high confidence levels in guidelines produced by Blue Cross/Blue Shield in 10% of their respondents. The largest reported difference between this study and the study by Tunis and colleagues was with confidence ratings for guidelines produced by ACP. Tunis et al. (1994) reported high and very high levels of confidence by 82% of their respondents compared to the 47% reported here. Given that their survey involved a random sample of ACP members, these results are not surprising.

Table 7 shows the mean level of confidence respondents reported having in CPGLs overall and in CPGLs issued by various organizations.

Table 7. Confidence in CPGLs Overall and in Those Issued by Various Organizations

Guideline Source	Mean (SD) Confidence Scores [1]				Hypothesis Testing	
	VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)	F ratio/ t-statistic	p value
Overall	3.20 (0.65)	2.95 (0.73)	3.03 (0.64)	3.09 (0.67)	1.905	0.153
American College of Physicians	3.60 (0.77)	3.39 (0.64)	3.31 (0.69)	3.47 (0.72)	2.057	0.132
Federal Agencies	3.36 (0.72)	2.97 (0.89)	3.18 (0.93)	3.22 (0.83)	2.806	0.064
Specialty Organizations	3.61 (0.73)	3.57 (0.87)	3.57 (0.90)	3.59 (0.81)	0.058	0.944
Third Party Payers	2.09 (0.68) [a]	1.68 (0.52) [b]	1.81 (0.68) [a b]	1.91 (0.66)	5.332	0.006
Respondents' Institution	3.35 (0.84)	3.05 (0.70)	3.00 (0.88)	3.18 (0.82)	2.749	0.068
DOD Pharmacoeconomic Center	NA	2.65 (0.67)	2.71 (0.96)	2.69 (0.81)	t = 0.355	0.724

[1] 1=Very Low 2=Low 3=Medium 4=High 5=Very High
Means with different letters are significantly different at alpha = 0.05 (Tukey HSD)

In order to test Hypotheses 7 through 12, ANOVAs were performed comparing the mean confidence scores among the three population groups. Hypothesis 13 was tested using an independent group t-test to compare the mean confidence scores between the two military populations.

Hypothesis 7: *There are no differences in the overall level of confidence in CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 7 showed no significant differences. Hypothesis 7 was therefore retained. This is surprising considering that we had previously shown VAMC practitioners to have more favorable attitudes toward CPGLs. It appears that there may be little relationship between confidence levels and attitudes toward CPGLs.

Hypothesis 8: *There are no differences in the level of confidence in CPGLs issued by the American College of Physicians among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 8 showed no significant differences. Hypothesis 8 was therefore retained. Without determining membership in ACP we had no reason to believe that these confidence levels would differ. It is possible that they would be higher for those who belonged to ACP as was shown in a previous survey (Tunis et al., 1994).

Hypothesis 9: *There are no differences in the level of confidence in CPGLs issued by federal agencies among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 9 showed no significant differences. Hypothesis 9 was therefore retained. In one sense these results were not surprising given that all three groups were federal medical facilities, however it is interesting to note that the VAMC respondents did have a higher percentage reporting high or very high confidence in federal agencies' CPGLs. One might speculate a difference in confidence exists between military and non-military practitioners' confidence. This could only be addressed by a larger and more specific study.

Hypothesis 10: *There are no differences in the level of confidence in CPGLs issued by a specialty organization among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 10 showed no significant differences. Hypothesis 10 was therefore retained. Although the test results show no differences among the groups, the 58.8% of respondents indicating high and very high confidence in CPGLs by specialty organizations indicates that practitioners have a high regard for the specialty organizations. This may be due to the belief that specialty organizations are the "experts" in their respective fields and practice guidelines issued by them may be seen as more credible.

Hypothesis 11: *There are no differences in the level of confidence in CPGLs issued by third party payers among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 11 showed a significant difference. Hypothesis 11 was therefore rejected. The Tukey HSD test isolated the difference as being between DMAFB respondents and VAMC respondents. No differences were found between DMAFB and RBAH respondents or between VAMC and RBAH respondents. The higher level of confidence reported by the VAMC group may be related to knowledge by practitioners involved with ACP, of previous and ongoing collaboration efforts between the National Blue Cross/Blue Shield Association and ACP. It also may be that since many of the practitioners from the VAMC are also affiliated with the University Medical Center in Tucson, Arizona, they may have a greater exposure to third party payer guidelines.

Hypothesis 12: *There are no differences in the level of confidence in CPGLs issued by a respondents' practice institution among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 12 showed no significant differences. Hypothesis 12 was therefore retained. This lack of any significant difference perhaps is due to a common lack of emphasis on CPGLs in the institutions.

Hypothesis 13: *There is no difference in the level of confidence in CPGLs issued by the Department of Defense Pharmacoeconomic Center (PEC) between the two groups of Army and Air Force medical practitioners.*

The test for Hypothesis 13 showed no significant difference. Hypothesis 13 was therefore retained. The lack of difference in the confidence levels is not surprising in

that there is a great deal of similarity between medical practitioners and medical operations at Air Force and Army medical facilities. What is surprising is the low levels of confidence exhibited, since the guidelines disseminated by the DOD PEC are based on published consensus statements, recommendations of expert panels and clinical consultant panels convened by the PEC.

Of the previous seven statistical tests, six showed no significant differences and one (Hypothesis 11) showed a statistically significant result that may not be very meaningful. These results are not surprising given that the three respondent groups have some similarity in that they all practice at federal medical facilities. The restrictions, regulations and procedures common to the two military facilities may be responsible for very similar confidence scores between these two groups.

FAMILIARITY

Table 8 reports the percentages of practitioners who reported high or very high familiarity with CPGLs overall and for CPGLs developed by various organizations. All percentages are broken down by respondent group as well as totals for each organization. The results reported reflect the high (4) and very high (5) responses for item 17 which asks, "In general, describe your familiarity with clinical practice guidelines" and from items 18 through 22 which asked, "How familiar are you with clinical practice guidelines developed by the American College of Physicians, federal agencies, a specialty organization, third party payers, your practice institution and the DOD PEC?"

Table 8. Percentage Reporting High or Very High Familiarity with CPGLs [1]

Issuing Organization	Respondent Group			
	VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)
Overall	20.0	13.1	21.2	18.4
American College of Physicians	18.5	10.5	12.1	14.7
Federal Agencies	15.4	13.2	18.2	15.4
Specialty Organizations	27.7	21.0	24.2	25.0
Third Party Payers	3.0	5.3	9.1	5.1
Respondents' Institution	29.2	28.9	24.2	27.9
DOD Pharmacoeconomic Center	NA	5.3	6.1	5.6

[1] Possible familiarity responses ranged from 1=Very Low to 5=Very High

The percentage of respondents reporting high and very high levels of familiarity with CPGLs ranged from 27.9% for guidelines developed by the respondent's own practice institution to 5.1% for guidelines developed by third party payers. The results broken down by respondent group are consistent with the totals.

In the Tunis et al. (1994) study, high and very high levels of familiarity with specific ACP guidelines (i.e., exercise stress testing, screening for colon cancer, use of routine chest radiographs, and common diagnostic tests) were reported by 11 to 40 percent of respondents. This study, (which did not ask about specific guidelines

developed by ACP), had by comparison 14.7% of respondents reporting high and very high levels of familiarity with ACP developed guidelines.

In making a comparison on familiarity with guidelines developed by federal agencies, Tunis and colleagues (1994) reported high and very high levels of familiarity with a specific federal guideline developed by the United States Preventive Services Task Force for 17% of respondents. Our study reported 15.4% of respondents with high and very high levels of familiarity with guidelines developed by federal agencies. Although this is consistent with what Tunis et al. (1994) reported, it might have been interesting to see what kinds of familiarity levels would have been reported if we had used the DOD PEC or the Department of Veterans Affairs as our examples of federal agencies instead of the examples used (i.e., NIH and Agency for Health Care Policy and Research).

This study asked about familiarity with guidelines developed by the respondent's own practice institution. Not surprisingly, this was the organization that had the most frequent number of respondents reporting high and very high levels of familiarity (27.9%). In this study we found that 29.2% of respondents from the VAMC were familiar with guidelines developed by their own practice institution. However, we also found that 47.7% of respondents from the VAMC reported familiarity with a specific VAMC migraine management guideline. This discrepancy may be due to the fact that the migraine management guideline (which was initially developed and disseminated in February 1994) appeared in the VAMC's housestaff of the day newsletter just prior to the survey administration. Three respondents from the VAMC reported they found out about

the migraine management guideline from the newsletter and others could have found out about it this way, but did not note it on the survey.

In order to test Hypotheses 14 through 19, ANOVAs were performed comparing the mean familiarity levels among the three population groups. Hypothesis 20 was tested using an independent group t-test to compare the mean familiarity levels between the two military populations. Results are reported in Table 9.

Table 9. Familiarity with CPGLs in General and With Those Developed by Various Organizations

Guideline Source	Mean (SD) Familiarity Scores [1]				Hypothesis Testing	
	VAMC (n=65)	DMAFB (n=38)	RBAH (n=33)	Total (n=136)	F-ratio/ t-statistic	p value
In general	2.94 (0.74)	2.82 (0.86)	3.12 (0.80)	2.95 (0.79)	1.345	0.264
American College of Physicians	2.72 (0.92)	2.45 (0.86)	2.47 (0.91)	2.58 (0.90)	1.415	0.247
Federal Agencies	2.64 (0.86)	2.45 (0.98)	2.73 (1.10)	2.61 (0.96)	0.817	0.444
Specialty Organizations	2.89 (1.02)	2.68 (1.16)	2.81 (0.95)	2.81 (1.04)	0.476	0.623
Third Party Payers	1.88 (0.82)	2.05 (0.87)	2.30 (0.98)	2.03 (0.89)	2.613	0.077
Respondents' Institution	2.98 (1.04)	2.89 (1.10)	2.69 (1.10)	2.89 (1.05)	0.817	0.444
DOD Pharmacoeconomic Center	NA	2.05 (0.87)	2.03 (0.92)	2.04 (0.90)	t = 0.105	0.916

[1] 1=Very Low 2=Low 3=Medium 4=High 5=Very High

Hypothesis 14: *There are no differences in the overall level of familiarity with CPGLs among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 14 showed no significant differences. Hypothesis 14 was therefore retained.

Hypothesis 15: *There are no differences in the level of familiarity with CPGLs developed by the American College of Physicians among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 15 showed no significant differences. Hypothesis 15 was therefore retained.

Hypothesis 16: *There are no differences in the level of familiarity with CPGLs developed by federal agencies among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 16 showed no significant differences. Hypothesis 16 was therefore retained.

Hypothesis 17: *There are no differences in the level of familiarity with CPGLs developed by a specialty organization among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 17 showed no significant differences. Hypothesis 17 was therefore retained.

Hypothesis 18: *There are no differences in the level of familiarity with CPGLs developed by third party payers among the three groups of VAMC, Army and Air Force medical practitioners.*

The results for Hypothesis 18 showed no significant differences. Hypothesis 18 was therefore retained.

Hypothesis 19: *There are no differences in the level of familiarity with CPGLs developed by a respondent's practice institution among the three groups of VAMC, Army and Air Force medical practitioners.*

The test for Hypothesis 19 showed no significant differences. Hypothesis 19 was therefore retained.

Hypothesis 20: *There is no difference in the level of familiarity with CPGLs developed by the DOD PEC between the two groups of Army and Air Force medical practitioners.*

The results for Hypothesis 20 showed no significant difference. Hypothesis 20 was therefore retained.

CONFIDENCE AND FAMILIARITY

In order to test Hypotheses 21 and 22, Pearson product moment correlation coefficients were calculated.

Hypothesis 21: *There is no relationship between the level of confidence in CPGLs overall and the level of familiarity with CPGLs overall.*

The test for Hypothesis 21 showed a significant difference. Hypothesis 21 was therefore retained.

Hypothesis 22: *There is no relationship between the level of confidence in CPGLs issued by: ACP, federal agencies, a specialty organization, third party payers, practice institutions and the DOD PEC and the level of familiarity with CPGLs developed by each organization respectively.*

The test for Hypothesis 22 showed a significant difference for all organizations except third party payers. Hypothesis 22 was therefore retained for ACP, federal agencies, a specialty organization, respondent's practice institution and the DOD PEC.

Table 10 presents correlation coefficients between the confidence items and their corresponding familiarity item both for the general questions (11 and 18) of Hypothesis 21 and those dealing with the specific organizations (items 12 through 17 and 19 through 24) of Hypothesis 22.

Table 10. Pearson Correlation Coefficient Matrix: Confidence and Familiarity

C								
O		FAMILIARITY						
N		1	2	3	4	5	6	7 [1]
F	1	0.193						
I	2		0.322					
D	3			0.376				
E	4				0.271			
N	5					-0.084		
C	6						0.325	
E	7 [1]							0.270

[1] Responses from DMAFB and RBAH only.
All correlations significant at $p \leq 0.05$ except for Confidence 5 and Familiarity 5

1. Overall confidence in CPGLs

Confidence in guidelines issued by:
2. American College of Physicians
3. Federal Agencies
4. Specialty Organizations
5. Third Party Payers
6. Respondents' Practice Institution
7. DOD Pharmacoeconomic Center

1. Familiarity with CPGLs in general

Familiarity with guidelines developed by:
2. American College of Physicians
3. Federal Agencies
4. Specialty Organizations
5. Third Party Payers
6. Respondents' Practice Institution
7. DOD Pharmacoeconomic Center

The relationship between overall confidence in CPGLs (item 11) and familiarity in general with CPGLs (item 18) was found to have a very low positive correlation (0.193). Such a correlation indicates a very small relationship, which although statistically significant is considered to be negligible.

The relationship between confidence in CPGLs issued by ACP (item 12) and familiarity with CPGLs developed by ACP (item 19) was found to have a low positive correlation (0.322). Such a correlation indicates a definite but small relationship.

The relationship between confidence in CPGLs issued by federal agencies (item 13) and familiarity with CPGLs developed by federal agencies (item 20) was found to have a low to moderate positive correlation (0.376). Such a correlation indicates a small to substantial relationship.

The relationship between confidence in CPGLs issued by a specialty organization (item 14) and familiarity with CPGLs developed by a specialty organization (item 21) was found to have a low positive correlation (0.271). Such a correlation indicates a definite but small relationship.

The relationship between confidence in CPGLs issued by third party payers (item 15) and familiarity with CPGLs developed by third party payers (item 22) was found to have a negligible negative correlation (-0.084) which was of no statistical significance.

The relationship between confidence in CPGLs issued by respondents' practice institution (item 16) and familiarity with CPGLs developed by respondents' practice institution (item 23) was found to have a low positive correlation (0.325). Such a correlation indicates a definite but small relationship.

The relationship between confidence in CPGLs issued by the DOD PEC (item 17) and familiarity with CPGLs developed by the DOD PEC (item 24) was found to have a low positive correlation (0.270). Such a correlation indicates a definite but small relationship.

The higher correlations associated with ACP, federal agencies and practice institutions (0.322, 0.376, 0.325, respectively) compared to the other organizations may

have something to do with the level of scientific or professional credibility of the organization issuing the guidelines, as suggested by Chassin (1988). These findings suggest that medical practitioners' level of confidence in CPGLs issued by various organizations is related to their familiarity with the CPGLs developed by the organization, but not for all organizations. In lieu of familiarity, it may be that medical practitioners' level of confidence in CPGLs is also related to the level of respect that the organization has in the "community."

GUIDELINE DEVELOPMENT AND CHARACTERISTICS

Table 11 gives the distribution of responses and means for items 23 through 27 which asked respondents to: "Indicate how important each of the following methods is in guideline development." The response frequencies for high importance (4) and very high importance (5) were summed. Summing the high importance and very high importance responses was believed to give the best indication of the importance to respondents of different guideline developmental methods. The formal literature review method had the most high importance and very high importance responses, followed by reliance on national experts. The method which received the fewest high importance and very high importance responses was "recommendations of other groups."

Table 11. Importance of Methods Used in Guideline Development

Guideline Development Method	Distribution of Responses [1]						Mean(SD) Response
	1	2	3	4	5	4+5	
Formal literature review	0	3	20	66	46	112	4.14 (0.75)
Reliance on national experts	1	7	40	60	27	87	3.77 (0.85)
Use of formal group methods	4	17	62	45	5	50	3.22 (0.83)
Reliance on local practitioners	6	41	50	31	6	37	2.92 (0.95)
Recommendation of other groups	6	25	72	25	5	30	2.98 (0.84)

[1] Possible responses ranged from 1 to 5, where 1 = Not at all important to 5 = Very high importance

Table 12 gives the distribution of responses to items 28 through 32 which asked respondents to: "Indicate how important each of the following guideline characteristics is in its likely affect on your acceptance." Rather than use terms that might be ambiguous to respondents, definitions of clarity, specificity, flexibility, reliability, and validity as they relate to clinical practice guidelines were used. The definitions for these terms are listed top to bottom in Table 12. The response frequencies for high importance and very high importance were summed. Summing the high importance and very high importance frequencies was believed to give the best indication of the importance to respondents of different guideline characteristics. The most frequently cited high importance and very high importance responses occurred for the characteristic of reliability, followed closely

by validity, and flexibility. Of the 672 possible responses, only one "not at all important" response was given and only 34 "low importance" responses were given.

Table 12. Importance of Guideline Characteristics

Guideline Characteristics	Distribution of Responses [1]						Mean(SD) Response
	1	2	3	4	5	4+5	
Reproducibility of results	0	6	18	79	31	110	4.00(0.74)
Guideline accomplishes what it is intended to	1	6	21	66	40	106	4.03(0.84)
Deviations allowed for specific circumstances	0	5	26	59	45	104	4.06(0.82)
Freedom from ambiguity	0	9	43	59	24	83	3.72(0.83)
Having a direct relationship to a specific result	0	8	44	65	17	82	3.67(0.77)

[1] Possible responses ranged from 1 to 5, where 1 = Not at all important to 5 = Very high importance

DISSEMINATION OF GUIDELINES

Item number 33 asked medical practitioners at the VAMC if they were familiar with the Tucson VAMC migraine management recommendations. Of those responding, 47.7% (31/65) indicated they were familiar with the recommendations and 52.3% (34/65) indicated they were not familiar with them. Table 13 lists the responses to the follow-up question: "How did you find out about the Tucson VAMC migraine management recommendations?" Respondents were asked to check all that applied. Based on these responses, it appears that discussion with colleagues was the most effective way that

information on the migraine management recommendations was disseminated to the medical staff. There are frequent references in the literature attesting to the use of colleagues and educational influentials to not only disseminate new information but also to influence physicians' practice patterns.

Table 13. Dissemination of Migraine Management Recommendations

Dissemination Method	Number of Responses [1]
Discussion with colleagues	24
Discussion with pharmacy staff	10
Discussion at meetings	14
Educational materials	8
Other	5

[1] More than one response could be checked

Respondents were asked to list the specific meetings, educational materials and "other" responses referenced in Table 13. Of the meetings mentioned, the ambulatory care staff meeting was the most frequently mentioned meeting with six respondents listing it as the source of their information for the migraine management recommendations. Under educational materials, three respondents listed the hospital newsletter as the source of their information for the migraine recommendations, two respondents indicated they learned of it from a Pharmacy and Therapeutics handout given them by a physician colleague and one cited the "migraine headache diagram" as

the source of their information. The diagram to which they were referring was the migraine headache management recommendations developed by the VAMC staff in the form of an algorithm. This algorithm is kept in the medical center's Life Support Unit (LSU) for reference since three respondents indicated that their familiarity with the migraine management recommendations came from seeing the algorithm in the LSU (VAMC equivalent of an emergency room) binder.

CARE BASED ON GUIDELINES

Table 14 lists the responses by VAMC medical practitioners to the question: "How much of the time is your care of migraine patients based on the Tucson VAMC recommendations?" Respondents were asked to check only one response since the responses "none of the time" and "I never treat patients with migraine" were not necessarily mutually exclusive. Responses to this question were omitted if the respondent had previously answered that they were not familiar with the Tucson VAMC migraine management recommendations (item 33). Respondents were told to skip this question if they had answered that they were not familiar with the recommendations. Of the respondents, 56.7% (17/30) indicated they based their care of migraine headache patients on the VAMC recommendations all or most of the time while only one respondent indicated that he or she never does. While this number appears high, it also indicates that a large percentage of respondents are not following the recommendations for some reason. Since these responses reflect only those practitioners who report

familiarity with the migraine recommendations, it seems reasonable to speculate that the 43.3% who do not base their care of migraine patients on the recommendations are doing so as a result of disagreement with some aspect of them. Although the development of the migraine recommendations was a multi-disciplinary effort, it may be that some medical practitioners felt a lack of ownership in the development of the recommendations or in the dissemination process.

Table 14. Migraine Care Based on the VAMC's Migraine Recommendations

Response Choices	Percentage (n=30)
All of the time	3.3
Most of the time	53.4
Some of the time	20
A little of the time	20
None of the time	3.3
I never treat patients with migraine	0

EFFECTS OF GUIDELINES ON CLINICAL DECISION MAKING

Table 15 lists the responses by VAMC practitioners to the question: "Estimate the effect the Tucson VAMC migraine management recommendations have had on your clinical decision making." Of the respondents, 67.7% (21/31) indicated that the migraine management recommendations had either a moderate or major effect on their clinical decision making. No respondents indicated they disagreed with the recommendations.

The development of the VAMC migraine headache recommendations was a lengthy process that involved the pharmacy, neurology, and ambulatory care services. At the conclusion of the process, the recommendations were approved by the Pharmacy and Therapeutics Committee in February 1994. Each service had ideas on what should be included in the recommendations. Because of this, some individuals may not have totally agreed with the final recommendations that were made, yet there was no indication of this in the responses. This lack of any reported disagreement does not correspond with respondents' self-reported choices for drug selection in the treatment of acute migraine.

Table 15. Effect of the VAMC's Migraine Recommendations on Decision Making

Response Choices	Percentage (n=31)
Major Effect	32.3
Moderate Effect	35.5
Minor Effect	22.6
No Effect (do not agree with the recommendations)	0
No Effect (already practiced according to the recommendations)	6.4
No Effect (cannot recall the specifics of the recommendations)	3.2

PERCEIVED GOALS OF GUIDELINES

Table 16 shows the distribution of responses from VAMC practitioners to item 37 which asks respondents to: "Rank the statements according to what you believe are the goals of the Tucson VAMC migraine management recommendations." Only responses

from those who indicated they were familiar with the VAMC migraine management recommendations were included.

Table 16. Goals of the VAMC's Migraine Recommendations

Response Choices	Distribution of Ranked Responses		
	Primary Goal	Secondary Goal	Tertiary Goal
Aid with ethical or legal issues	2	5	**23**
Cost control	4	**21**	5
Improved quality of care	**24**	4	2

Hypothesis 23: *There are no differences in what medical practitioners select as the primary, secondary and tertiary goals of the VAMC's migraine management recommendations.*

To test Hypothesis 23 a chi-square test of distribution was performed. The results showed a significant difference (Chi-square = 29.6, df = 2, p = < 0.001) for the distribution of responses given as the primary goal. Although the goals of the VAMC were not stated in these terms, there were some points that were deemed important to the developers in the treatment of migraine in their institution. These points were to use specific antimigraine therapy, to avoid the use of narcotics, and to control excessive costs in the treatment of migraine. Certainly the use of specific antimigraine agents (including prophylactic therapy) and the avoidance of narcotic dependence is synonymous with

improved quality of care and may also be related to cost control and aid with ethical and legal issues.

Primarily what the developers of the recommendations hoped to achieve was to establish a rational and coordinated plan for managing migraine headaches in the institution. The reason for asking question 37 was an attempt to determine if the medical practitioners at the VAMC understood the rationale behind the migraine recommendations. There was a concern that some might see it as another cost control measure that could negatively impact patient care. As such it would have made it difficult to change the existing patterns of managing migraine patients in the institution.

CHOICE OF MIGRAINE DRUG SELECTION

Table 17 lists the frequency of responses to item 38 by practitioners at the VAMC when asked to list the progressive order in which they would prescribe the listed migraine drugs given the following scenario: they were to "assume an adult migraine patient presented to you at the ER or LSU, who had no contraindications to any of the listed drugs." All respondents were asked to list their preferences regardless of their knowledge of the guidelines. The majority of respondents listed prochlorperazine (30/58) as their first choice, dihydroergotamine (19/58) as their second choice, ketorolac (21/58) as their third choice, sumatriptan (20/58) as their fourth choice and opiates (29/58) as their fifth choice. This is also the progressive order of treatment that is recommended by the VAMC's migraine management recommendations.

Table 17. Response Frequency For Acute Migraine Drug Selection

	Migraine Drugs [1]	First Choice	Second Choice	Third Choice	Fourth Choice	Fifth Choice
1.	Prochlorperazine	**30**	9	5	5	9
2.	Dihydroergotamine	11	**19**	15	10	3
3.	Ketorolac	6	14	**21**	12	5
4.	Sumatriptan	10	7	9	**20**	12
5.	Opiates	1	9	8	11	**29**

[1] Drug choices are listed in the order recommended by the VAMC migraine management recommendations

Table 18 lists the responses of those who report familiarity with the VAMC migraine management recommendations (determined by a yes response to item 33, "Are you familiar with the Tucson VAMC's migraine management recommendations?"). Not surprisingly, the majority of the correct responses listed in Table 17 were from this group: Prochlorperazine (22/30), Dihydroergotamine (14/19), Ketorolac (12/21), Sumatriptan (14/20) and Opiates (17/29), suggesting that if dissemination of the migraine recommendations was improved, familiarity would possibly increase.

Table 18. Response Frequency for Those Reporting Familiarity with the VAMC's Migraine Management Recommendations

	Migraine Drugs [1]	First Choice	Second Choice	Third Choice	Fourth Choice	Fifth Choice
1.	Prochlorperazine	**22**	2	3	0	4
2.	Dihydroergotamine	4	**14**	6	6	1
3.	Ketorolac	2	9	**12**	5	3
4.	Sumatriptan	3	3	5	**14**	6
5.	Opiates	0	3	5	6	**17**

[1] Drug choices are listed in the order recommended by the VAMC migraine management recommendations.

Table 19 lists the sequentially "correct" selections of respondents for treating acute migraine headache according to the VAMC migraine management recommendations. Twenty eight respondents (28/58) did not get the initial drug selection correct. Thirty respondents correctly selected prochlorperazine (PCZ) as the first choice. Sixteen respondents correctly selected PCZ followed by dihydroergotamine (DHE). Fourteen respondents correctly selected PCZ followed by DHE followed by ketorolac (KET). Thirteen respondents correctly selected PCZ followed by DHE followed by KET followed by sumatriptan (SUM). Thirteen respondents, five of whom were nurse practitioners, correctly selected all five drugs in the correct sequence.

Table 19. Response Frequency by Correct Sequential Order

	Drug Choices [1]	Correct Responses [2] (n=58)				
	Correct Sequence →	1	1-2	1-3	1-4	1-5
1.	Prochlorperazine	**30**				
2.	Dihydroergotamine		**16**			
3.	Ketorolac			**14**		
4.	Sumatriptan				**13**	
5.	Opiates					**13**

[1] Drug choices are listed in the order recommended by the migraine guidelines
[2] Correct responses as outlined by the VAMC's migraine management recommendations.

Of the eight neurology physicians who responded, seven of whom reported they were familiar with the migraine management recommendations, none correctly identified all five drugs in the sequence recommended. This was surprising since the Chief of the Neurology Service was one of the principal developers of the recommendations. Comments given by three of the neurology physicians seemed to indicate that the question was not answered as it was designed to be. One respondent's comment indicated that his or her selections were based on the assumption that the patient had cardiac problems and one respondent's comment questioned if the patient was a drug seeker. Although the item instructed respondents to assume that the patient had no contraindications to any of the drugs, it appears that these two respondents may have

made their selections based on circumstances that were not included in the scenario given. The third comment by a neurology resident indicated that he "used his own approach," which involved combination therapy with PCZ and DHE as a first choice.

Table 20 displays the "correct" sequential responses from those reporting familiarity with the migraine recommendations. Of this group, 22/30 (73.3%), selected the first drug correctly; 87.5% (14/16) selected the first two drugs correctly; 92.8% (13/14) selected the first three drugs correctly and 92.3% (12/13) selected all five drugs in the "correct" sequence. As discussed earlier, although familiarity is no guarantee of knowledge, it appears that those who have been exposed to the migraine management recommendations are more likely to have this knowledge.

Table 20. Response Frequency by Sequential Order for Those Reporting Familiarity

	Drug Choices [1]	Correct Responses [2]				
	Correct Sequence →	1	1-2	1-3	1-4	1-5
1.	Prochlorperazine	**22**				
2.	Dihydroergotamine		**14**			
3.	Ketorolac			**13**		
4.	Sumatriptan				**12**	
5.	Opiates					**12**

[1] Drug choices are listed in the order recommended by the migraine management recommendations

[2] Correct responses as outlined by the VAMC's migraine management recommendations

PROPHYLACTIC THERAPY FOR MIGRAINE TREATMENT

Table 21 lists the responses of practitioners from the VAMC to item 39 which asked respondents: "In your practice, estimate the percentage of migraine patients for whom you prescribe prophylactic therapy." Of the 65 VAMC respondents, 18 did not respond to the question and two thought it was not applicable. Of this group, 15 respondents indicated they never prescribe prophylactic therapy and ten others indicated they prescribe prophylactic therapy less than half the time. This is a major departure from the migraine management recommendations which encourage that prophylactic therapy be tried for all migraine headache patients.

Table 21. Reported Percentage of Patients for Whom Prophylactic Therapy Prescribed

Percentage of Time That Prophylactic Therapy Prescribed (n = 47)					
0%	1-20 %	21-40 %	41-60 %	61-80 %	81-100 %
15	9	1	7	8	5

Table 22 provides the reported percentage of patients for whom prophylactic therapy was prescribed by those respondents who reported familiarity with the VAMC recommendations. Of the 31 respondents, seven did not respond to the question and one thought it was not applicable. Of this group two indicated they never prescribe prophylactic therapy and six others indicated they prescribe it less than half of the time.

Table 22. Reported Percentage of Patients for Whom Prophylactic Therapy Prescribed by Respondents Who Report Familiarity

Percentage of Time That Prophylactic Therapy Prescribed (n = 31)					
0%	1-20 %	21-40 %	41-60 %	61-80 %	81-100 %
2	5	1	4	6	5

When the responses given by the group of neurology physicians were examined, it was found that they reported prescribing prophylactic therapy more frequently than the general VAMC population. Of the 12 respondents who reported they prescribe prophylactic therapy 80% of the time or more, five of eight were from the neurology group, with two of them indicating they prescribe prophylactic therapy over 90% of the time. One neurologist did not respond to the question and the neurologist who reported not being familiar with the migraine management recommendations reported using prophylactic therapy five percent of the time. These results suggest that focused care of patients by the neurologists may be related to more optimal drug therapy.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

This research focused upon four major areas of inquiry, including: (1) attitudes toward CPGLs; (2) confidence in CPGLs; (3) familiarity with CPGLs; (4) and effects of a locally developed migraine management recommendation.

The analysis of the attitude scale scores for the three groups was both discouraging and encouraging. While the attitudes of practitioners at the VAMC were slightly more favorable than practitioners at the two military hospitals, it was discouraging that the attitude scale scores for all groups showed that practitioners were unsure of CPGLs in general. The attitude scale scores indicate that practitioners don't fully believe that CPGLs may improve the quality of health care and/or reduce medical care costs. It was encouraging that none of the individual attitude item scores showed any strong areas of concern. Most statement means were in the neutral range with the exceptions of the statements "good educational tools" and "a convenient source of advice," which most respondents generally agreed with. This is encouraging in that CPGLs are designed to be an aid to medical practitioners.

In investigating the attitudes of practitioners toward CPGLs based on the demographic characteristics of practitioner type, years of practice, primary specialty area, patient care time, and level of post graduate medical training, only years of practice showed any significant difference.

When we compared the mean scores among the three groups, for confidence levels in CPGLs overall and for CPGLs issued by various organizations we found no significant differences except for CPGLs issued by third party payers. Whereas the low confidence levels for guidelines issued by third party payers was not surprising, the results of our hypothesis testing did show that the confidence level for guidelines issued by third party payers was greater for practitioners at the VAMC than for DMAFB.

When we compared the mean scores among the three groups, for familiarity with CPGLs in general and for CPGLs issued by various organizations we found no significant differences. It was interesting that almost all respondents reported familiarity scores that, although not tested for statistical significance, appeared lower than their respective confidence scores. Not a single organization had a score as high as 3.0 indicating a medium level of familiarity with guidelines developed by the organization. It is possible that the confidence scores reported by respondents may be related to more than familiarity levels. They may also be associated with the reputation and credibility of the issuing organization.

One possible explanation for the low familiarity scores may be a problem of terminology. The term clinical practice guidelines was defined for survey respondents in the broadest possible terms; however, practitioners may have been familiar with CPGLs under different names. The terms algorithm, protocol, recommendations for treatment, practice policies, practice parameters and many others, could be encompassed within the

term "clinical practice guidelines." It may be that medical practitioners would have reported higher levels of familiarity if these other terms were considered.

When we explored the relationship between confidence in CPGLs overall and familiarity with CPGLs in general, as well as confidence and familiarity with each of the organizations respectively, we found significant, although small, positive relationships for all except third party payers. These results are not surprising in that it makes intuitive sense that some level of acceptability should be attained the more familiar one is with something. This level of acceptability may translate into confidence if the guideline possesses the crucial characteristics that give it credibility (validity, reliability, flexibility, specificity and clarity).

One must exercise caution in interpreting these results. The relationships are not strong. In fact the strongest correlation coefficient observed, between confidence in guidelines issued by federal agencies and familiarity with guidelines developed by federal agencies ($r = 0.376$), can only account for 14% of the variation between the scores. As discussed earlier, when familiarity scores were examined, confidence appears to depend on a number of variables, many of which have yet to be elucidated.

When we looked at what medical practitioners thought were the goals of the VAMC migraine management recommendations we showed that the vast majority of respondents believed that improved quality of care was the number one goal. This was very encouraging. Although there were a number of stated and unstated goals behind the migraine management recommendations developed by the neurology, ambulatory care

and pharmacy services at the VAMC, the improved care of migraine headache patients was their first consideration.

One of the goals of this research was to identify the guideline developmental methods that are the most important to medical practitioners. Respondents clearly indicated that formal literature review is the most important method to use in guideline development, followed by reliance on national experts. Although many informal methods have been used in the past, the method that is being promoted the most today is a variation of the evidence-based method. This method adopted by AHCPR in its guideline development process, bases its recommendations on the evidence from clinical studies and supplements it with expert opinion in the absence of sufficient empirical data. This approach seems to correspond with what respondents think is the best method. These results are very encouraging to guideline development. Practitioners acceptance and belief in the methods used to develop guidelines will be crucial if one hopes guidelines will achieve the expected goals.

Another goal of this research was to identify the guideline characteristics that are the most important to medical practitioners' acceptance. It was interesting that all five of the characteristics received moderate to high levels of importance. While the characteristics of reliability, validity and flexibility appeared to be the most important characteristics, clarity and specificity also appeared to quite important to practitioners. It was not expected that any of these characteristics would be deemed "unimportant." Developers of guidelines feel that all five of these characteristics must be present if

guidelines are to be accepted by practitioners and to have any impact on clinical practice (Audet et al., 1990). The results of this study clearly support this view. One must wonder if respondents' low confidence scores for guidelines issued by third party payers and the DOD PEC have anything to do with a lack of one or more of these characteristics.

When medical practitioners were asked how they became familiar with the migraine management recommendations developed at the VAMC, the majority of the responses indicated that they found out through discussion with colleagues. This result was not surprising given that physicians discussion with colleagues has frequently been cited as a significant influence in decisions to change clinical practices and in providing advice.

When we asked respondents to list the order of drugs they would use to treat an adult migraine patient who had presented to them in the ER or LSU, 22.4% selected all five drugs in the sequence suggested in the migraine management recommendations. When we analyzed the responses from those reporting familiarity with the migraine recommendations, 40% selected all five drugs in the recommended sequence. Since respondents were not asked to make their selections based on the VAMC's recommendations, we are assuming that the selections made represent an "intention to treat" based on usual practices. Whether this assumption is correct or not, it does indicate that many medical practitioners either lack familiarity with the recommendations or are following a treatment plan that differs from what the

recommendation suggests. Certainly the goal of the VAMC's recommendation to use specific antimigraine therapy appears to have had mixed success, however the objective of avoiding the use of narcotics does appear to have been achieved. The majority of respondents (68.9%) selected narcotics as their fourth or fifth choice. Of those reporting familiarity with the recommendations, 74.2% selected narcotics as the fourth or fifth choice.

The other aspect of the goal to use specific antimigraine therapy involved the recommendation that prophylactic therapy be tried for all migraine headache patients. The results of the question asking practitioners to estimate the percentage of migraine patients for whom they prescribed prophylactic therapy showed that prophylactic therapy was prescribed on average 33% of the time. While this number is not high, it may overestimate the use of prophylactic therapy. Many of the respondents indicated they never use prophylactic therapy, while the average for the neurologists was 62% of the time. The latter group may use preventive therapy more frequently since more complicated cases are seen by them in consultation. It appears that the goal of improving the care of patients by lowering the frequency of their migraine attacks with preventive therapy may not have been achieved outside of the neurology section. This may be due to a problem of inadequate dissemination of the migraine management recommendations in the institution. Many of the resident physicians from the VAMC, who were practicing during the development and implementation stages of the migraine management recommendations, have left the institution. In order to increase familiarity, it may be that

a mechanism needs to be put in place that will continually re-orient new practitioners to the "recommendations."

RECOMMENDATIONS

This research provided a basis for further inquiry into the attitudes of medical practitioners toward CPGLs and related topics. Similar research should be performed with larger numbers of subjects that would provide greater generalizability to the Department of Veterans Affairs (VA) and Department of Defense (DOD) health systems. In light of the growing interest in practice guidelines and the increase in joint medical operations between the VA and the DOD, it is imperative to obtain a more in-depth understanding of federal medical practitioners' attitudes toward CPGLs.

Another area of further research would be to develop a method that would allow for the sharing of practice guideline information between federal medical facilities. This sharing of methods, processes, and results within the DOD and military medical facilities as well as between both health systems would provide health professionals with treatment guidelines that had been "tested" in similar medical care environments.

The primary goals of CPGLs are to improve patient outcomes and to lower health care costs. With this in mind, cost-effectiveness studies of individual CPGLs should be performed. Such studies should examine the development and dissemination costs associated with a CPGL and compare them with the changes in health care costs that arise from the implementation of the guideline. Health care costs that should be

examined include the costs associated with treatment of the condition as a result of adherence to the guideline along with the costs associated with alternative treatments for the condition. Additionally, cost-utility studies should be conducted that look at the incremental costs of developing, implementing and monitoring adherence with a guideline and the incremental changes in patient outcomes/quality of life associated with the guideline. Since medical practitioners seem unsure of what effects CPGLs will have on health care costs and patient outcomes, it is imperative that these questions be answered.

Since the local development of practice guidelines has been shown to have a good chance of "practitioner acceptance," especially if practitioners are involved in the process, accreditation bodies such as JCAHO and the DOD's Health Services Management Inspection team should do more to promote these efforts and share this information. Further, when CPGLs are developed locally, developers should enlist the cooperation of "educational influentials" to help explain the process and the goals of the guidelines to the medical staff. In addition, as many recognized local experts as is reasonable should be included in the process and the widest possible dissemination of the guidelines accomplished. Practitioners practice patterns should be monitored with timely feedback and peer comparisons provided. Also, medical staffs should be made aware of changes in patient outcomes as a result of implementation of the guidelines. In addition, a mechanism that will inform new practitioners of the existence of CPGLs and the history behind their development should be established within health care networks.

In that medical practitioners at the military facilities reported both low confidence and low familiarity levels with guidelines published by the DOD PEC, efforts should be made to increase dissemination of the "PEC UPDATE," the newsletter of the DOD PEC. This newsletter, which outlines the rationale behind their disease treatment recommendations and the source of their recommendations, is currently only disseminated to the Chief of Pharmacy and the Hospital Medical Commander at each medical treatment facility within the DOD. Dissemination to the Hospital Commanders is unlikely to reach all of the health care professionals affected by the recommendations. The dissemination of the PEC's recommendations within the medical treatment facilities by the pharmacy staff as suggested by the PEC, is likely to be seen only as a cost control effort initiated by pharmacy personnel. A better idea would be to obtain the endorsement of the Army, Air Force, and Navy medical community for all guideline recommendations and make them directly available to medical practitioners as software updates through the Composite Health Care System (CHCS). Since CHCS is used by medical personnel at Army, Air Force and, Navy medical facilities, it would provide practitioners with timely access to the PEC recommendations and allow for rapid updates and changes.

REFERENCES

AHCPR Publications catalog. Agency for health care policy and research 1995 spring/summer. Rockville, MD: U.S. Department of health and human services, AHCPR Publication no. 95-0035.

Agency for health care policy and research. Clinical practice guideline development. Rockville, MD: U.S. Department of health and human services, AHCPR Publication no. 93-0023. August 1993.

Agency for health care policy and research. Clinical practice guideline development: methodology perspectives. Rockville, MD: U.S. Department of health and human services, AHCPR Publication no. 95-0009. January 1995.

Anderson GF, Hall MA, Steinberg EP. Medical technology assessment and practice guidelines: their day in court. *Am J Public Health.* 1993; 83:1635-1639.

Audet AM, Greenfield S, Field M. Medical practice guidelines: current activities and future directions. *Ann Intern Med.* 1990; 113:709-714.

Bjornson CD, Rector TS, Daniels CE, et al. Impact of a drug-use review program intervention on prescribing after publication of a randomized trial. *Am J Hosp Pharm.* 1990; 47:1541-3029.

Brook RH. Practice guidelines and practicing medicine: are they compatible? *JAMA.* 1989; 262:3027-3030.

Burns LR, Dentoin M, Goldfein S, et al. The use of continuous quality improvement methods in the development and dissemination of medical practice guidelines. *QRB.* 1992; December:434-439.

Chassin MR. Standards of care in medicine. *Inquiry.* 1988; 25:437-453.

Chassin MR, Kosecoff J, Park RE, et al. Does inappropriate use explain geographic variations in the use of health care services?: a study of three procedures. *JAMA.* 1987; 258:2533-2537.

Christensen S, Gordon N, Bilheimer L. Savings under health maintenance organizations. CBO Memorandum: effects of managed care, an update. 1994; March:15-21.

Clinton JJ. Clinical practice guidelines: enhancing quality of care. *Mil Med.* 1993; 158 (7):446-447.

Dans PE. Credibility, cookbook medicine, and common sense: guidelines and the college. *Ann Intern Med.* 1994;120 (11): 966-968. Editorial.

Denig P, Haaijer-Ruskamp FM, Wesseling H, et al. Drug expectations and drug choices of hospital physicians. *J Intern Med.* 1993; 234:155-163.

Devillis RF. Scale development: theory and applications. Newbury Park, CA: Sage; 1991.

Eddy DM. Designing a practice policy: standards, guidelines, and options. *JAMA.* 1990a; 263(22):3077-3084.

Eddy, DM. Practice policies: where do they come from? *JAMA.* 1990b; 263(9):1265-1275.

Eddy DM. What do we do about costs? *JAMA.* 1990c; 264(9):1161-1170.

Eddy DM. Practice policies:what are they? *JAMA.* 1990d; 263(6):877-880.

Eddy DM. Guidelines for policy statements: the explicit approach. *JAMA.* 1990e; 263(16):2239-2243.

Eddy DM. The challenge. *JAMA.* 1990f; 263(2):287-290.

Eddy DM. Comparing benefits and harms: the balance sheet. *JAMA.* 1990g; 263:2493-2505.

Eddy DM. Three battles to watch in the 1990s. *JAMA.* 1993; 270(4):520-526.

Eisenberg JM, Williams SV. Cost containment and changing physicians' practice behavior. Can the fox learn to guard the chicken coop? *JAMA.* 1981; 246(19):2195-2201.

Eisenberg JM. Physician utilization: the state of research about physicians' practice patterns. *Med Care.* 1985; 23(5):461-483.

Ellrodt AG, Conner L, Riedinger MS, et al. Implementing practice guidelines through a utilization management strategy: the potential and the challenges. *QRB.* 1992; December: 456-460.

Ellrodt AG, Conner L, Riedinger MS, et al. Measuring and improving physician compliance with clinical practice guidelines. *Ann Intern Med.* 1995; 122:277-282.

Epstein AM, Begg CB, McNeil BJ. The effects of physicians' training and personality on test ordering for ambulatory patients. *Am J Public Health.* 1984; 74(11):1271-1272.

Epstein AM, McNeil BJ. Relationship of beliefs and behavior in test ordering. *Am J Med.* 1986;80:865-870.

Epstein AM. The outcomes movement: will it get us where we want to go? *N Engl J Med.* 1990; 322:266-270.

Fink A, Kosecoff J, Chassin M, et al. Consensus methods: characteristics and guidelines for use. *Am J Public Health.* 1984; 74(9):979-983.

Fink A, Kosecoff J. How to conduct surveys: a step-by-step guide. Newbury Park, CA: Sage; 1985.

Fowler FJ. Survey research methods. Newbury Park, CA: Sage; 1993.

Garnick DW, Hendricks AM, Brennan TA, et al. Can practice guidelines reduce the number and costs of malpractice claims? *JAMA.* 1991; 266(20):2856-2860.

Geertsma RH, Parker RC, Whitbourne SK. How physicians view the process of change in their practice behavior. *J Med Educ.* 1982; 57(Oct):752-761.

Goodman G, Baratz SR, eds. Improving consensus development for health technology assessment: an international perspective. Institute of Medicine; council on health care technology. Washington, DC:National Academy Press; 1989.

Gottlieb LK, Margolis CZ, Schoenbaum SC. Clinical practice guidelines at an HMO: development and implementation in a quality improvement model. *QRB.* 1990; February:80-86.

Greene HL, Goldberg RJ, Beattie H, et al. Physician attitudes toward cost containment: the missing piece of the puzzle. *Arch Intern Med.* 1989; 149:1966-1968.

Grilli R, Apolone G, Marsoni S, et al. The impact of patient management guidelines on the care of breast, colorectal, and ovarian cancer patients in Italy. *Med Care.* 1991; 29(1):50-62.

Grimshaw JM, Russell IT. Effect of clinical guidelines on medical practice: a systematic review of rigorous evaluations. *Lancet.* 1993; 342:1317-1322.

Harrison DL, Coons SJ, Jones WN, Labadie EL. The economic impact of a protocol for the management of migraine headaches. *Journal of Research in Pharmaceutical Economics.* Accepted for publication.

Hayward RA, Manning WG, McMahon LF, et al. Do attending or resident physician practice styles account for variations in hospital resource use? *Med Care.* 1994; 32 (8):788-794.

Headrick LA, Speroff T, Pelecanos HI, et al. Efforts to improve compliance with the National Cholesterol Education program guidelines: results of a randomized controlled trial. *Arch Intern Med.* 1992;152:2490-2496.

Health Insurance Association of America. Medical practice assessment report: underevaluated health care technology. Washington, DC:Health Insurance Association of America; 1989.

Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm.* 1990; 47:533-43.

Hicks, WE, ed. ASHP guidelines on the pharmacist's role in drug use evaluation. Practice Standards of ASHP 1994-1995; 47.

Hill MN, Levine DM, Whelton PK. Awareness, use, and impact of the 1984 Joint National Committee consensus report on high blood pressure. *Am J Public Health.* 1988; 78(9):1190-1193.

Hirshfeld EB. Practice parameters and the malpractice liability of physicians. *JAMA.* 1990; 263(11):1556-1562.

Jacoby I. Evidence and consensus. *JAMA.* 1988; 259:3039.

Javitt JC, Kendix M, Tielsch JM, et al. Geographic variation in utilization of cataract surgery. *Med Care.* 1995; 33(1):90-105.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO). 1994 Accreditation Manual for Hospitals. Oakbrook Terrace, Il:JCAHO, 1993.

Kane RL, Garrard J. Changing physician prescribing practices: regulation vs education. *JAMA.* 1994; 271(5):393-394. Editorial.

Kassirer JP. The quality of care and the quality of measuring it. *N Engl J Med.* 1993; 329:1263-1265. Editorial.

Kelly JT, Swartwout JE. Development of practice parameters by physician organizations. *QRB.* 1990; February:54-57. Commentary.

Kosecoff J, Kanouse DE, Rogers WH, et al. Effects of the National Institutes of Health consensus development program on physician practice. *JAMA.* 1987; 258:2708-2713.

Leape LI. Practice guidelines and standards: an overview. *QRB.* 1990; February:42-49.

Lee PR, Ginsburg PB, LeRoy LB, et al. The physician payment review commission report to Congress. *JAMA.* 1989; 261(16):2382-2385.

Liu YQ, Lor E, Jacobson, M. Pharmacist-directed program for monitoring foscarnet therapy. *Am J Hosp Pharm.* 1994; 51:2155-2156.

Lipowski EE, Becker M. Presentation of drug prescribing guidelines and physician response. *QRB.* 1992; December:461-470.

Lomas J. Holding back the tide of caesareans: publishing recommendations is not enough to stop the rise. *BMJ.* 1988; 297:569-570.

Lomas J. The consensus process and evidence dissemination. *Can Med Assoc J.* 1986; 134:1340-1341.

Lomas J, Enkin M, Anderson GM, et al. Opinion leaders vs audit and feedback to implement practice guidelines. *JAMA.* 1991; 265(17):2202-2207.

Lomas J, Haynes RB. A taxonomy and critical review of tested strategies for the application of clinical practice recommendations: from "official" to "individual" clinical policy. *Am J Prev Med.* 1988; 4 (Supp):77-94.

Lomas J, Anderson GM, Domnick-Pierre K, et al. Do practice guidelines guide practice? The effect of a consensus statement on the practice of physicians. *N Engl J Med.* 1989; 321(19):1306-1311.

MacKinnon NJ, Flagstad MS, Peterson CR, et al. Disease management program for asthma: baseline assessment of resource use. *Am J Hosp Pharm.* 1996; 53:535-541.

Margolis CZ, Cook CD, Barak N, et al. Clinical algorithms teach pediatric decisionmaking more effectively than prose. *Med Care.* 1989; 27 (6):576-584.

Marwick C. New health care research agency reflects interest in evaluating quality. *JAMA.* 1990; 263:929-930.

McCormick KA, Fleming B. Clinical practice guidelines. *Health Progress.* 1992; 30-34.

Neumann PJ, Weinstein MC. The diffusion of new technology: costs and benefits to health care. In: Gelijns AC, Halm EA, eds. The Changing Economics of Medical Technology. Washington, DC: National Academy Press; 1991; 21-34.

Park RE, Fink A, Brook RH, et al. Physician ratings of appropriate indications for six medical and surgical procedures. *Am J Public Health.* 1986; 76:766-772.

Pierce EC Jr. The development of anesthesia guidelines and standards. *QRB.* 1990; February:61-64.

Pineault R. The effect of medical training factors on physician utilization behavior. *Med Care.* 1977; Vol XV(1):51-67.

Pharmacoeconomic Center Update. *PEC Update. 1995a*; Volume 95-05:1-4.

Pharmacoeconomic Center Update. *PEC Update. 1995b*; Volume 96-01:1-2.

Pharmacoeconomic Center Update. *PEC Update.* 1996; Volume 96-07:1-2.

Raisch DW. A model of methods for influencing prescribing: a review of prescribing models, persuasion theories, and administrative and educational methods. *Ann Pharmacother.* 1990; 24 (April):417-421.

Relman AS. Assessment and accountability: the third revolution in medical care. *N Engl J Med.* 1988; 319:1220-1222.

Rivey MP, Wood RD, Allington DR, et al. Pharmacy-managed protocol for warfarin use in orthopedic surgery patients. *Am J Hosp Pharm.* 1995; 52:1310-1316.

Roper WL, Winkenwerder W, Glenn MD, et al. Effectiveness in health care: an initiative to evaluate and improve medical practice. *N Engl J Med.* 1988; 319:1197-1202.

Salant P, Dillman DA. How to conduct your own survey. New York, N.Y:John Wiley & Sons; 1994.

Salem-Schatz S, Moore G, Rucker M, et al. The case for case-mix adjustment in practice profiling: when good apples look bad. *JAMA.* 1994; 272 (11):871-874.

Schoenbaum SC, Gottlieb LK. Algorithm based improvement of clinical quality. *BMJ.* 1990; 301:1374-1376.

Schroeder SA, Myers LP, McPhee SJ, et al. The failure of physician education as a cost containment strategy. *JAMA.* 1984; 252(2):225-230.

Soumerai SB, McLaughlin TJ, Avorn J. Improving drug prescribing in primary care: a critical analysis of the experimental literature. *Milbank Q.* 1989; 67(2):268-317.

Sox HC, Woolf SH. Evidence-based practice guidelines from the U.S. preventive services task force. *JAMA.* 1993; 269(20):2678.

Sox HC Jr., ed. Common diagnostic tests: use and interpretation. Philadelphia, Pa: American College of Physicians;1987.

Tanenbaum SJ. What physicians know. *N Engl J Med.* 1993; 329(17):1268-1270.

Tunis SR, Hayward RSA, Wilson MC, et al. Internists' attitudes about clinical practice guidelines. *Ann Intern Med.* 1994; 120:956-963.

Urdang, L, ed. The Random house college dictionary. 1st ed. New York, NY:Random House; 1979.

VanAmringe M, Shannon, TE. Awarness, assimilation, and adoption: the challenge of effective dissemination and the first AHCPR-sponsored guidelines. *QRB.* 1992; December:397-404.

Vogel DP, Ivey MF, Stanley R. ASHP statement on the role of the pharmacist in patient focused care. *Am J Health-Syst Pharm.* 1995; 52:1808-1810.

Von Korff M, Barlow W, Cherkin D, et al. Effects of practice style in managing back pain. *Ann Intern Med.* 1994; 121:187-195.

Wall, EM. Practice guidelines: promise or panacea? *J Fam Pract.* 1993; 37(1):17-19. Editorial.

Weingarten S, Ellrodt AG. The case for intensive dissemination: adoption of practice guidelines in the coronary care unit. *QRB.* 1992; December:449-455.

Weingarten SR, Riedinger MS, Conner L, et al. Practice guidelines and reminders to reduce duration of hospital stay for patients with chest pain. *Ann Intern Med.* 1994; 120:257-263.

Weingarten S, Bolus R, Riedinger M, et al. Do older internists use more hospital resources than younger internists for patients hospitalized with chest pain? A study of patients hospitalized in the coronary care and intermediate care units. *Crit Care Med.* 1992; 20(6):762-767.

Weingarten S, Agocs L, Tankel N, et al. Reducing lengths of stay for patients hospitalized with chest pain using medical practice guidelines and opinion leaders. *Am J Cardiol.* 1993; 71(4):259-262.

Weingarten S, Stone E, Hayward R, et al. The adoption of preventive care practice guidelines by primary care physicians: do actions match intentions? *J Gen Intern Med.* 1995; 10:138-144.

White LJ, Ball JR. Integrating practice guidelines with financial incentives. *QRB.* 1990; February:50-53.

White LJ, Ball JR. The clinical efficacy assessment project of the American College of Physicians. *Int J Technol Assess Health Care.* 1985; 1:169-174.

Winickoff RN, Coltin KL, Morgan MM, et al. Improving physician performance through peer comparison feedback. *Med Care.* 1984; 22(6):527-534.

Woolf SH. Practice guidelines, a new reality in medicine: recent developments. *Arch Intern Med.* 1990; 150:1811-1818.

Woolf SH. Practice guidelines, a new reality in medicine: methods of developing guidelines. *Arch Intern Med.* 1992; 152:946-952.

Woolf SH. Practice guidelines, a new reality in medicine: impact on patient care. *Arch Intern Med.* 1993; 153:2646-2655.

Woolf SH. Manual for clinical practice guideline development: a protocol for expert panels convened by the office of the forum for quality and effectiveness in health care. Rockville, Md:Agency for Health Care Policy and Research; 1991; AHCPR publication 91-07.

Zellmer WA. Expressing the mission of pharmacy practice. *Am J Hosp Pharm.* 1991; 48:1195. Editorial.

APPENDIX A

FINAL SURVEY INSTRUMENT

VETERANS AFFAIRS MEDICAL CENTER

DEPARTMENT OF VETERANS AFFAIRS

PHARMACY AND PATIENT CARE SERVICES (119)
TUCSON, AZ 85723

In Reply Refer To:

Dear Medical Practitioner:

The purpose of this project is to determine your attitudes toward, confidence in, and familiarity with clinical practice guidelines issued by various organizations. In addition, we would like to find out how familiar you are with the migraine management recommendations developed here at the Tucson Veterans Affairs Medical Center.

Clinical practice guidelines are becoming a part of today's health care environment. This growing interest in practice guidelines has resulted in their being used more frequently in the practice of medicine. Various organizations are developing and issuing practice guidelines in the hopes of improving the quality of patient care and in reducing health care costs.

You are part of a small group of physicians and other medical practitioners who were selected because of your affiliation with the VA medical system and because your views are believed to be representative of many health care providers today. Your responses are very important to our analysis, so **PLEASE** take a few minutes to answer these questions. It is hoped that the results of this project will provide some insight into what *you* feel are the most important considerations in practice guideline development today. Participation is of course voluntary and your responses will remain completely confidential.

Please address any questions to:
Bill Jones / Clinical Pharmacy
(pager # 1886)

Please **Return** the completed survey to the Pharmacy Office (119) as soon as possible, or if you prefer, arrangements can be made to pick up the survey.

THANK YOU

Mark Flynn, RPh
Graduate Student
The University of Arizona
College of Pharmacy
Tucson, Arizona

Bill Jones, M.S.
Associate Chief of Pharmacy
Clinical Services
Veterans Affairs Medical Center
Tucson, Arizona

Please continue on next page →

Clinical Practice Guidelines Survey

Definition: ***Clinical Practice Guidelines are preformed recommendations issued for the purpose of influencing decisions about health interventions.***

Directions: Using the above definition of clinical practice guidelines, please answer the items below. It should take approximately 5 minutes to complete the survey.

For items 1-10, please circle the number that best describes your level of agreement with various statements about clinical practice guidelines.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
—In general, clinical practice guidelines are:					
1. good educational tools.....	1	2	3	4	5
2. oversimplified or "cookbook" medicine.....	1	2	3	4	5
3. a convenient source of advice.....	1	2	3	4	5
4. too rigid to apply to individual patients...	1	2	3	4	5
5. likely to decrease health care costs.....	1	2	3	4	5
6. a challenge to physician autonomy.....	1	2	3	4	5
7. an unbiased synthesis of expert opinion.....	1	2	3	4	5
8. likely to be used in physician credentialing	1	2	3	4	5
9. likely to decrease defensive practices.....	1	2	3	4	5
10. likely to increase health care costs.....	1	2	3	4	5

For items 11-16, please circle the number that best describes your level of confidence in clinical practice guidelines issued by various organizations.

	Very Low	Low	Medium	High	Very High
11. Overall, how much confidence do you have in clinical practice guidelines?.....	1	2	3	4	5
—How much confidence would you have in guidelines issued by:					
12. the American College of Physicians?.....	1	2	3	4	5
13. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
14. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
15. third party payers (e.g.,Blue Cross/Blue Shield, Health Maintenance Organizations)?.	1	2	3	4	5
16. your practice institution (e.g., Tucson Veterans Affairs Medical Center)?.....	1	2	3	4	5

Please continue on next page → →

For items 17-22, please circle the number that best describes your level of familiarity with clinical practice guidelines developed by various organizations.

	Very Low	Low	Medium	High	Very High
17. In general, describe your familiarity with clinical practice guidelines.....	1	2	3	4	5
—How familiar are you with guidelines developed by:					
18. the American College of Physicians?.....	1	2	3	4	5
19. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
20. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
21. third party payers (e.g., Blue Cross/Blue Shield, Health Maintenance Organizations)?..	1	2	3	4	5
22. your practice institution (e.g., Tucson Veterans Affairs Medical Center)?.....	1	2	3	4	5

For items 23-32, circle the number that best describes the level of importance to YOU.

—Indicate how important each of the following <u>methods</u> is in guideline development:

	Not At All	Low	Moderate	High	Very High
23. Reliance on national experts.....	1	2	3	4	5
24. Formal literature review.....	1	2	3	4	5
25. Reliance on local practitioners.....	1	2	3	4	5
26. Use of formal group judgment methods.....	1	2	3	4	5
27. Recommendations of other groups.....	1	2	3	4	5

—Indicate how important each of the following guideline <u>characteristics</u> is in its likely affect on your acceptance:

28. Freedom from ambiguity.....	1	2	3	4	5
29. Having a direct relationship to a specific result	1	2	3	4	5
30. Deviations allowed for specific circumstances....	1	2	3	4	5
31. Reproducibility of results.....	1	2	3	4	5
32. Guideline accomplishes what it is intended to....	1	2	3	4	5

The next section asks for information regarding the TUCSON VAMC's RECOMMENDATIONS FOR TREATING MIGRAINE PATIENTS.

33. Are you familiar with the Tucson VAMC's migraine management recommendations? **(Check)**
☐ YES ☐ NO

If you answered YES to item 33, continue with item 34. IF NO, SKIP to item 38.

34. How did you find out about the Tucson VAMC's migraine management recommendations? **(Check all that apply)**

☐ Discussion with colleagues
☐ Discussion with pharmacy staff
☐ Discussion at meetings (Please specify)_____
☐ Educational materials (Please specify)_____
☐ Other..... (Please specify)_____

Please continue on next page →→→

35. How much of the time is your care of migraine patients based on the Tucson VAMC's recommendations? **(Check only one)**

☐ All of the time
☐ Most of the time
☐ Some of the time
☐ A little of the time
☐ None of the time
☐ I never treat patients with migraine

36. Estimate the effect the Tucson VAMC's migraine management recommendations have had on your clinical decision making. **(Check only one)**

☐ Major Effect
☐ Moderate Effect
☐ Minor Effect
☐ No Effect (do not agree with the recommendations)
☐ No Effect (already practiced according to the recommendations)
☐ No Effect (cannot recall the specifics of the recommendations)

37. **Rank** the statements below according to what you <u>believe</u> are the goals of the Tucson VAMC's migraine management recommendations. Rank statements a-c as either 1, 2, or 3.

a. Aid with ethical or legal issues
b. Cost control
c. Improved quality of care

1._____ (primary goal)
2._____ (secondary goal)
3._____ (tertiary goal)

38. If an adult migraine patient presented to you at the ER or LSU, who had no contraindications to any of the drugs below; list the ***<u>progressive order</u>*** (1-5) that you would prescribe drugs a-e for the patient's acute attack.

a. Dihydroergotamine (DHE ®)
b. Ketorolac (Toradol ®)
c. Opiates (e.g., Meperidine, Codeine)
d. Prochlorperazine (Compazine ®)
e. Sumatriptan (Imitrex ®)

1._____ (first choice)
2._____ (second choice)
3._____ (third choice)
4._____ (fourth choice)
5._____ (fifth choice)

39. Prophylactic therapy may be used as part of migraine management. In your practice, estimate the percentage of migraine patients for whom you prescribe prophylactic therapy.
Estimated Percentage:_____%

This last section asks general information about you. This information will be used for classification purposes only; your responses will remain completely confidential.

Gender: ☐ Male ☐ Female

Profession: ☐ Physician ☐ Nurse Practitioner

<u>Physicians</u>
Board Certified or Eligible?: ☐ Yes ☐ No

Year graduated from medical school?:_____

☐ Resident ☐ Intern ☐ Fellow ☐ Attending

<u>Nurse Practitioners</u>
Number of Years in practice?:_____

<u>Physicians and Nurse Practitioners</u>

What is your **primary** specialty area?_____

Normally, what percentage of your time is devoted to patient care?_____%

List all National, State and Specialty professional associations to which you belong.

_____ _____
_____ _____
_____ _____

Please return this survey to the Pharmacy office (119) as soon as possible. **Thank You**

APPENDIX B

FINAL SURVEY INSTRUMENT

DAVIS MONTHAN AIR FORCE BASE HOSPITAL

Dear Medical Practitioner:

The purpose of this project is to to determine your attitudes toward, confidence in, and familiarity with clinical practice guidelines issued by various organizations.

Clinical practice guidelines are becoming a part of today's health care reforms. This interest in the use of practice guidelines has resulted in their being used more frequently in the practice of medicine. Various organizations are developing and issuing practice guidelines in the hopes of improving the quality of patient care and in reducing health care costs.

You are part of a small group of physicians and other medical practitioners who were selected because of your familiarity with medical practice at a Department of Defense (DOD) medical facility and because your views are believed to be representative of many health care providers today. Your responses are very important to our analysis, so **PLEASE** take a few minutes to answer these questions. It is hoped that the results of this project will provide some insight into what ***you*** feel are the most important considerations in practice guideline development today. Participation is of course voluntary and your responses will remain completely confidential.

Please address any questions to:
Capt Mark Flynn
The University of Arizona
College of Pharmacy
626-4452

Please **Return** the completed survey to Maj. Soto in the Pharmacy (ext 2851) as soon as possible

THANK YOU

Mark T. Flynn, Capt, USAF
College of Pharmacy
The University of Arizona
Tucson, Arizona

Please continue on next page →

Clinical Practice Guidelines Survey

Definition: *Clinical Practice Guidelines are preformed recommendations issued for the purpose of influencing decisions about health interventions.*

Directions: Using the above definition of clinical practice guidelines, please answer the items below. It should take approximately 5 minutes to complete the survey.

For items 1-10, please circle the number that best describes your level of agreement with various statements about clinical practice guidelines.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
—In general, clinical practice guidelines are:					
1. good educational tools.....	1	2	3	4	5
2. oversimplified or "cookbook" medicine.....	1	2	3	4	5
3. a convenient source of advice.....	1	2	3	4	5
4. too rigid to apply to individual patients...	1	2	3	4	5
5. likely to decrease health care costs.....	1	2	3	4	5
6. a challenge to physician autonomy.....	1	2	3	4	5
7. an unbiased synthesis of expert opinion.....	1	2	3	4	5
8. likely to be used in physician credentialing	1	2	3	4	5
9. likely to decrease defensive practices.....	1	2	3	4	5
10. likely to increase health care costs.....	1	2	3	4	5

For items 11-17, please circle the number that best describes your level of confidence in clinical practice guidelines issued by various organizations.

	Very Low	Low	Medium	High	Very High
11. Overall, how much confidence do you have in clinical practice guidelines?.....	1	2	3	4	5
—How much confidence would you have in guidelines issued by:					
12. the American College of Physicians?.....	1	2	3	4	5
13. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
14. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
15. third party payers (e.g.,Blue Cross/Blue Shield, Health Maintenance Organizations)?.	1	2	3	4	5
16. your practice institution (e.g., 355th Medical Group, Davis Monthan AFB Hospital)?	1	2	3	4	5
17. the DOD's Pharmacoeconomic Center (PEC)?....	1	2	3	4	5

Please continue on next page →→

For items 18-24, please circle the number that best describes your level of familiarity with clinical practice guidelines developed by various organizations.

	Very Low	Low	Medium	High	Very High
18. In general, describe your familiarity with clinical practice guidelines.....	1	2	3	4	5
—How familiar are you with guidelines developed by:					
19. the American College of Physicians?.....	1	2	3	4	5
20. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
21. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
22. third party payers (e.g., Blue Cross/Blue Shield, Health Maintenance Organizations)?..	1	2	3	4	5
23. your practice institution (e.g., 355th Medical Group, Davis Monthan AFB Hospital)?.	1	2	3	4	5
24. the DOD's Pharmacoeconomic Center (PEC)?....	1	2	3	4	5

For items 25-34, circle the number that best describes the level of importance to YOU.

—Indicate how important each of the following methods is in guideline development:

	Not At All	Low	Moderate	High	Very High
25. Reliance on national experts.....	1	2	3	4	5
26. Formal literature review.....	1	2	3	4	5
27. Reliance on local practitioners.....	1	2	3	4	5
28. Use of formal group judgment methods.....	1	2	3	4	5
29. Recommendations of other groups.....	1	2	3	4	5

—Indicate how important each of the following guideline characteristics is in its likely affect on your acceptance:

30. Freedom from ambiguity.....	1	2	3	4	5
31. Having a direct relationship to a specific result.	1	2	3	4	5
32. Deviations allowed for specific circumstances.....	1	2	3	4	5
33. Reproducibility of results.....	1	2	3	4	5
34. Guideline accomplishes what it is intended to.....	1	2	3	4	5

This last section asks general information about you. This information will be used for classification purposes only; your responses will remain completely confidential.

Gender: ☐ Male ☐ Female

Profession: ☐ Physician ☐ Nurse Practitioner ☐ Physician Assistant

Military Information: Rank:_____ Time of Service:_____

Physicians

Board Certified or Eligible?: ☐ Yes ☐ No

Year graduated from medical school?:_____

Nurse Practitioners and Physician Assistants

Number of Years in practice?:_____

Physicians, Nurse Practitioners and Physician Assistants

What is your primary specialty area?_____

Normally, what percentage of your time is devoted to patient care?_____%

List all National, State, and Specialty professional associations to which you belong.

_____ _____

_____ _____

_____ _____

Please return to the Pharmacy as soon as possible. Thank You

APPENDIX C

FINAL SURVEY INSTRUMENT

RAYMOND W. BLISS ARMY COMMUNITY HOSPITAL

Dear Medical Practitioner:

Enclosed is the survey that was discussed at the January 26 quarterly medical staff meeting. Please take a few minutes to complete it and return it to the Pharmacy as soon as possible.

Clinical practice guidelines are becoming a part of today's health care reforms. This interest in the use of practice guidelines has resulted in their being used more frequently in the practice of medicine. Various organizations are developing and issuing practice guidelines in the hopes of improving the quality of patient care and in reducing health care costs.

The purpose of this project is to to determine your attitudes towards, confidence in, and familiarity with clinical practice guidelines issued by various organizations.

You are part of a small group of physicians and other medical practitioners who were selected because of your familarity with medical practice at a Department of Defense (DOD) medical facility and because your views are believed to be representative of many health care providers today. Your responses are very important to our analysis, so **PLEASE** take a few minutes to answer these questions. It is hoped that the results of this project will provide some insight into what ***you*** feel are the most important considerations in practice guideline development today. Participation is of course voluntary and your responses will remain completely confidential.

Please address any questions to:
Capt Mark Flynn
The University of Arizona
College of Pharmacy
626-4452

Please **Return** the completed survey to Dan Kinnaird (9025) in the Pharmacy or place in distribution

THANK YOU

Please continue on next page →

Clinical Practice Guidelines Survey

Definition: *Clinical Practice Guidelines are preformed recommendations issued for the purpose of influencing decisions about health interventions.*

Directions: Using the above definition of clinical practice guidelines, please answer the questions below. It should take approximately 5 minutes to complete the survey.

For questions 1-10, please circle the number that best describes your level of agreement with various statements about clinical practice guidelines.

	Strongly Disagree 1	Disagree 2	Neither Agree Nor Disagree 3	Agree 4	Strongly Agree 5
—In general, clinical practice guidelines are:					
1. good educational tools.....	1	2	3	4	5
2. oversimplified or "cookbook" medicine.....	1	2	3	4	5
3. a convenient source of advice.....	1	2	3	4	5
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8. likely to be used in physician credentialing	1	2	3	4	5
9. likely to decrease defensive practices.....	1	2	3	4	5
10. likely to increase health care costs.....	1	2	3	4	5

For questions 11-17, please circle the number that best describes your level of confidence in clinical practice guidelines issued by various organizations.

	Very Low 1	Low 2	Medium 3	High 4	Very High 5
11. Overall, how much confidence do you have in clinical practice guidelines?.....	1	2	3	4	5
—How much confidence would you have in guidelines issued by:					
12. the American College of Physicians?.....	1	2	3	4	5
13. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
14. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
15. third party payers (e.g.,Blue Cross/Blue Shield, Health Maintenance Organizations)?.	1	2	3	4	5
16. your practice institution (e.g., Raymond Bliss Army Community Hospital)?	1	2	3	4	5
17. the DOD's Pharmacoeconomic Center (PEC)?...	1	2	3	4	5

Please continue on next page →→

For items 18-24, please circle the number that best describes your level of familiarity with clinical practice guidelines developed by various organizations.

	Very Low	Low	Medium	High	Very High
18. In general, describe your familiarity with clinical practice guidelines.....	1	2	3	4	5
—How familiar are you with guidelines developed by:					
19. the American College of Physicians?.....	1	2	3	4	5
20. federal agencies (e.g., NIH, Agency for Health Care Policy and Research)?.....	1	2	3	4	5
21. a specialty organization (e.g., American College of Cardiology)?.....	1	2	3	4	5
22. third party payers (e.g., Blue Cross/Blue Shield, Health Maintenance Organizations)?..	1	2	3	4	5
23. your practice institution (e.g., Raymond W. Bliss Army Community Hospital)?.....	1	2	3	4	5
24. the DOD's Pharmacoeconomic Center (PEC)?....	1	2	3	4	5

For items 25-34, circle the number that best describes the level of importance to YOU.

—Indicate how important each of the following <u>methods</u> is in guideline development:

	Not At All	Low	Moderate	High	Very High
25. Reliance on national experts.....	1	2	3	4	5
26. Formal literature review.....	1	2	3	4	5
27. Reliance on local practitioners.....	1	2	3	4	5
28. Use of formal group judgment methods.....	1	2	3	4	5
29. Recommendations of other groups.....	1	2	3	4	5

—Indicate how important each of the following guideline <u>characteristics</u> is in its likely affect on your acceptance:

30. Freedom from ambiguity.....	1	2	3	4	5
31. Having a direct relationship to a specific result.	1	2	3	4	5
32. Deviations allowed for specific circumstances.....	1	2	3	4	5
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This last section asks general information about you. This information will be used for classification purposes only; your responses will remain completely confidential.

Gender: ☐ Male ☐ Female

Profession: ☐ Physician ☐ Nurse Practitioner ☐ Physician Assistant

Military Information: Rank:_____ Time of Service:_____

<u>Physicians</u>

Board Certified or Eligible?: ☐ Yes ☐ No

Year graduated from medical school?:_____

<u>Nurse Practitioners and Physician Assistants</u>

Number of Years in practice?:_____

<u>Physicians, Nurse Practitioners and Physician Assistants</u>

What is your **primary** specialty area?_____

Normally, what percentage of your time is devoted to patient care?_____%

List all National, State, and Specialty professional associations to which you belong.

_____ _____

_____ _____

_____ _____

Please return to the Pharmacy as soon as possible. Thank You

APPENDIX D

CORRESPONDENCE USED IN FINAL STUDY

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA

8 March 1996

MEMORANDUM FOR PROVIDER

FROM: SGSAP

SUBJECT: Survey

A survey was sent to you on 20 Feb 96. The following providers have not completed and returned their survey. Please return them NLT 17 March 1996.

SECTION	PROVIDER	SECTION	PROVIDER
	Dr.	Peds	Dr.
	Dr.		Dr.
	Dr.		Cpt
Flt Med	Dr.	ER	Dr.
	Dr.		Dr.
OB/GYN	Dr.	Family Practice	PA
	Cpt.		PA
	Col		Dr.
	Dr.		PA
	Dr.		PA
			Dr.
ENT	Dr.		
Surgery	PA		

signed

MARK T. FLYNN, Capt, USAF
College of Pharmacy

APPENDIX E

PERMISSION LETTERS

Human Subjects Committee

THE UNIVERSITY OF
ARIZONA.
HEALTH SCIENCES CENTER

1622 E. Mabel St.
Tucson, Arizona 85724
(520) 626-6721

9 February 1996

Mark T. Flynn, B.S.
c/o Stephen Coons, Ph.D.
Department of Pharmacy Practice
College of Pharmacy
PO BOX 210207

RE: ASSESSMENT OF MEDICAL PRACTITIONERS' PERCEPTIONS OF CLINICAL PRACTICE GUIDELINES

Dear Mr. Flynn:

We have received documents concerning your above referenced project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101 (b) (2)] exempt this type of research from review by our Committee.

Please be advised that **clearance from official authorities from site(s) where proposed research is to be conducted must be obtained prior to performance of this study.**

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

WFDenny

William F Denny, M.D.
Chairman
Human Subjects Committee

WFD:js
cc: Department/College Review Committee

Department of
Veterans Affairs

Memorandum

Date: April 1, 1996

From: Research Service (151)

Subj: Project Approval

To: William N. Jones, M.S. (119)

The Research and Development Committee discussed and approved your proposal entitled, "Assessment of Medical Practitioner's Perceptions of Clinical Practice Guidelines" at its meeting of March 27, 1996. Your project has been assigned #0024.

Steven Goldman, M.D.
Vice Chairperson, R&D Committee

February 20, 1996

To Human Subjects Committee:

The University of Arizona

Health Sciences Center

Capt Mark T. Flynn has received permisssion to administer a questionnaire to the medical providers at the 355th Medical Group Hospital (Davis Monthan AFB). The questionnaire titled "Clinical Practice Guideline Survey" will be administered during the months of February-March 1996.

Sincerely,

Stanley L. Goodwin, Colonel

Chief of Medical Staff

355th Medical Group

Davis Monthan AFB

February 20, 1996

To Human Subjects Committee:

The University of Arizona

Health Sciences Center

Capt Mark T. Flynn has received permisssion to administer a questionnaire to the medical providers at Raymond W. Bliss Army Community Hospital. The questionnaire titled "Clinical Practice Guideline Survey" will be administered during the months of February-March 1996.

Sincerely,

James F. Dunn

James F. Dunn Jr.

Deputy Commander, Clinical Services

Raymond W. Bliss Army Community Hospital